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Chemical Show Reveals New Developments

Nineteenth Annual Exposition of Chemical Industries Held At Madison Square Garden, December 6-11 — Manufacturing Equipment, Technical and Research Apparatus Featured In Displays.

The nineteenth Exposition of Chemical Industries was held at Madison Square Garden, New York, December 6-11 inclusive. New materials, processes, equipment and instruments, whose applications are not fully explored, created wide interest. A large number of the displays related to machinery and manufacturing equipment, with technical equipment and research apparatus, instruments of control and processing materials, well represented. Of particular interest to the paper industry were the following exhibits:

Acme Steel Co.

The exhibit of the Acme Steel Company featured a demonstration of the new Acme 45-degree angle Silverstitcher, for the rapid closure of bags. Also on display was the regular line of Silverstitchers, and the Acme Steelstrap for reinforcing shipping packages.

Representatives present included the following: H. H. Clark, W. E. Close, F. L. Harding, R. H. Rosenberg, V. F. Fiore, and G. W. Neu.

American Instrument Co.

The exhibit of the American Instrument Company featured a Sub-Zero cabinet for testing paper and many other materials in extreme temperatures ranging from 100 degrees below zero to 200 degrees F. in the same cabinet. Other products on display were laboratory stirrers, immersion heaters, relays and ovens for the mill laboratory.

Representatives in attendance included W. H. Reynolds, and M. J. Seavy

Ansul Chemical Co.

The exhibit of the Ansul Chemical Company featured acid and alkali cements. Among them was Syntho acid-proof cement which is highly resistant to corrosion and is inert to dilute chlorine to a temperature limit of 330 degrees F. Included was the company's Alk-Li-Pruf cement which is highly resistant to strong alkalis. Both products find applications for laying up acid and alkali proof linings, drains and floors.

Bird Machine Co.

The Bird Machine Company featured a Bird Continuous Centrifugal Filter at its exhibit, which was so arranged to show the inside operation and construction of the machine, which is being employed with great success on many critical war materials in the chemical and mining industries.

Representatives of the company in attendance were George Sherrerd, Jr., F. X. Ferney, Eric Piper, Henry Shepherd, Erwin Beach, John McKeon, and George Milliken.

Blaw-Knox Co.

The exhibit of the Blaw-Knox Company featured a plastic working model of the concern's new continuous Green Liquor Causticizer. The display explained the application of the apparatus in causticizing recovered liquors in sulphate and soda pulp mills.

Cambridge Instrument Co.

The exhibit of the Cambridge Instrument Company included the newly designed light-weight Surface Pyrometer. Other instruments shows were the new 4-point Gas Analyser, which continuously records simultaneously, oxygen, carbon dioxide, carbon monoxide, and hydrogen in a sample of combustion products, and a Dissolved Oxygen Recorder. Other instruments on view included a line operated, panel mounted pH Meter for continuous operation, Hand Model and Printer's Moisture Indicators, newly designed light-weight Surface Mold and Needle Pyrometers, a Model 120-A Exhaust Gas Tester, Aero Mixture Indicators and other instruments.

Representatives present included: R. H. Kruse, W. H. Jefferson, F. G. Paully, H. F. Matthiessen, C. W. Campbell, B. O. Watkins, R. Rick, H. N. Packard, and U. O. Hutton.

Combustion Engineering Co.

The exhibit of the Combustion Engineering Company, Raymond Pulverizer Division, displayed its general line of laboratory equipment. Included were

(Continued on page 26)

Mill Wages Up 14 Per Cent in Three Years

Wisconsin Commission Reports Weekly Pay Has Increased $7 and Average Hourly Wages Reached A High of 82.2 Cents Last September — Paper Mill Products Aid the War — Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 6, 1943.—Within a period of approximately three years, wages in pulp, paper and allied industries have risen an average of 14 cents per hour, the number of hours worked has been lengthened an average of three hours per week, and the average weekly pay check has grown approximately $7.00.

Compilations made by the Industrial Commission of Wisconsin from January, 1941 to October, 1943 inclusive show these trends. The average hourly earnings have grown from a low of 65.2 cents in April, 1941 to a high of 82.2 cents in September, 1943. The average for the year 1941 was 68.5 cents, for 1942, 77.5 cents, and the range in 1943 is from 80.8 cents in February to 82.2 September.

Paper and pulp mills average 69.9 cents per hour or $29.92 per week for 42.8 hours in 1941; 78.9 cents or $33.33 per week for 42.3 hours in 1942, and approximately 83 cents or $36.00 for 43 to 44 hours in 1943.

In the container and box industries, the averages were: 1941—65.7 cents per hour or $27.28 per week for 41.5 hours; 1942—71.3 cents per hour or $30.11 per week for 42.2 hours, and in 1943—82 cents or $35 for 43 hours.

Paper products and specialities showed the following averages: 1941—60.4 cents per hour or $26.02 per week for 43.1 hours; 1942—68.1 cents per hour or $28.77 per week for 42.2 hours, and for 1943—73 cents per hour or $34 per week for 47 hours.

Number of Workers Declines

In October of this year, the number of workers on payrolls declined 0.9% from September, dropping from 23,400 workers to 23,200. The average was 0.1% below October, 1942, when 23,300 were employed. Weekly payrolls in October averaged $858,000, an increase of 5.4% from the average of $814,000 in September, and of 7.4% from $799,000 in October a year ago.

The October, 1943 pay checks covered an average of 45.1 hours worked at 81.9 cents per hour, or $36.94 per week.

In the Milwaukee metropolitan area, the number of workers dropped 0.3% to 2,134, and average weekly payrolls were $81,680, an increase of 8.3% from September. Workers earned $38.28 for 47.5 hours at 80.6 cents per hour in October.

Seeks Elimination of Independent Union

Dissolution of the independent union of Kimberly-Clark Corporation employes is sought by the International Brotherhood of Paper makers (AFL), following a meeting of approximately 300 employes of the Badger-Globe and Lakeview mills of Neenah, Wis., at the Twin City Labor hall at Menasha, Wis. Wednesday of last week. Charles Heymens, AFL representative was the speaker.

It was agreed at the meeting that a petition would be filed with the National Labor Relations Board requesting a public hearing on dissolution of the independent union's contract with Kimberly-Clark. The union has been in existence for the last two years, and labor-management relations where handled prior to that time by a mill council. It is reported that a similar hearing had been held at Niagara, Wis., where another K-C mill is located.

An election was held by the union among employes of the K-C mill at Kimberly, Wis. last week, in which Harold Struich, representing the chlorine department, Dale Daniels, representing the finishing room, Emil Van Dyke, woodyard, Harry Kokke, groundwood department, Melvin Schnese, paper machines and statistical department, and Wilbur Strick, beater room, were chosen as directors for the ensuing year. All but Struich and Daniels were reelected.

Decision on Power of Labor Board Expected

A decision will be issued soon on the test case instituted by Local No. 66, International Brotherhood of Papermakers, at the Rhinelander Paper Company, Rhinelander, Wis., relative to jurisdiction and power of the Wisconsin Employment Relations Board. A hearing was held in the circuit court at Wausau, Wis., before Judge Gerald J. Boileau Saturday of last week, and briefs have been filed.

The union refused to obey the labor board's order to pay half of the back wages due a dismissed employee, Gwynne Netling, up to the time of his reinstatement, contending the order infringes upon the collective bargaining rights guaranteed to the union, violates jurisdiction and is unconstitutional because it conflicts with the National Labor Relations Act.

Reports No Accidents in Month

The Thilmany Pulp and Paper Company, Kaukauna, Wis., is proud of its record in completing the month of Novemberwithout a lost-time accident in any of its plants. There are 1,200 persons employed.

Neenah Employes to Have Christmas Party

Employes of the Neenah Paper Company, Neenah, Wis., will have their fifth annual Christmas party at Germinia hall, Menasha, Wis., Sunday evening, December 12. There will be a dinner and program. Another party will be held Sunday afternoon, Dec. 19 for the children of employees.

J. P. Liska Heads Benefit Group

Joseph P. Liska was elected president of the Mutual Benefit Association of the Marinette Paper Company, Marinette, Wis., at its annual meeting. He succeeds William Mayville.

Roger Williams Enlists in Navy

Roger Williams, technical assistant at the Institute of Paper Chemistry, Appleton, Wis., has enlisted in the United States Navy. He is awaiting call and will be enrolled in the V-12 program.

Supply Situation Less Favorable in Chicago

Increasing Difficulty of Obtaining Suitable Paper Is Bringing Into Use Less Desirable Types To Meet Civilian Demands — Recommends Mail Advertisers Use Postal Cards — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 6, 1943.—Local paper trade executives, while not participating actively in the much discussed pulp and paper shortage, are reporting more frequent protests from paper users over the Government's own policy of huge paper usage in fashioning rules, regulations and explanatory releases for business in general. This may become more intensified, say local paper men, as paper users, are forced to the position of proving their "end use" qualifications.

In general, the markets are even more tight with the newsprint and merchandise shortage situation forcing elements of the user trade into pressure for new kinds of stock on which to contact customers. Krafts were far behind in orders while all grades of sulphites reported a similar situation. Books and covers indicated more signs of the strain of an economy trying to meet war swollen shopper pocketbooks while newsprint and groundwood firms were looking for more strict observance of reduction and allocation programs. Waste paper collections were spotty and showed the need of continued concerted drives for waste collections.

Discusses Post-War Exports

The western division of the Salesmens Association of the Paper Industry received an unexpected and much appreciated treat on Monday noon, November 29, when Mr. Eli De Vries, president of Parsons and Whittemore, Inc., spoke at the regular noon luncheon at the Sherman Hotel. Mr. De Vries, who is also president of the United States Exporters Council, discussed post war export conditions in the paper trade and the probable position of paper as an export commodity when hostilities cease. The experienced export executive painted a fairly optimistic picture of the future conditions, pointing out that in such countries as India and China where per capita paper consumption was less than a pound, such consumption would probably be doubled shortly after hostilities cease and would increase in greater proportion as such countries re-established themselves. He expressed the belief that educational and living standards in these countries were bound to increase materially and indicated that each upward step would enhance the importance of paper as a commodity for general use.

Mr. De Vries was introduced by Harold Knott, a past vice president of the western division, and sales executive of the Wausau Paper Company.

Proposes Increased Mail Advertising

It probably won't be much solace to paper merchants who are hard pressed to supply paper in all lines, but John T. Bartlett, writing in the current issue of the Illinois Journal of Commerce, proposes that certain advertising remedies for the paper shortage rest in retailers using other types of mediums and of paper to contact their customers. He stresses the use of post-cards and says that "one thing is sure—there will be no shortage of government postcards"; urging retailers to make far more use of this carrier —and thus of pulp from which the cards is made—to make their contacts. In fact, Mr. Bartlett, who is known as a merchandising counsellor, urges all retailers to immediate prepare an accurate mailing list of active customers and inactive customers, develop new lists of accounts and go into the mail advertising business in a big way. "Retail merchants should not worry about the paper shortage as it affects their advertising—but they should be prepared to do something about it".

Consider 48 Hour Week Order

Chicago industry has until January 16 to determine its course under the Forty Eight Hour Week Order of the WMC which goes into effect January 16. Any employer who makes application for exemption before January 16 will be regarded as complying with the order. General policies governing exemptions are now being studied locally wherever less than 48 hours are being worked which is, of course, the case in many jobber and retail firms. Exemptions are granted where it can be shown that a 48 hour week would be impractical in view of the nature of the operation or that such a work week would not release any workers.

Plan to Collect More Waste Paper

A continuing newspaper and promotion drive for the purpose of increasing waste paper salvage from 6,000,000 to 8,000,000 tons a year will be released the week of December 6, has been announced by Edwin S. Friendly, Chairman of the A. N. P. A. Newspaper Committee for the U. S. Victory Waste Paper Campaign.

At the request of Donald M. Nelson, all the newspapers in the country, through the cooperation of the A. N. P. A., have been asked to participate in the drive. All advertising space, publicity and other promotional effort will be contributed by these newspapers on a voluntary basis, as was done in the highly successful scrap metal drive of last year.

McCann Erickson, the agency for the scrap metal drive, will prepare the advertising and promotion material for the waste paper drive.

Representing the newspaper industry on the executive committee heading the drive are: Edwin S. Friendly, Chairman; Tom Cathcart, This Week Magazine; H. B. Fairchild, New York Sun; Cranston Williams, A. N. P. A.

R. C. Skillman on Steering Committee

Appointment of R. C. Skillman, supervisor of employee relations at the Champion Paper and Fibre Company, Hamilton, Ohio, as a member of the steering committee of five of the National Industrial Recreation Association, has been announced. Headquarters are in Chicago. The committee is charged with developing and promoting ideas for athletic and other recreational activities in plants throughout the country. He is the only representative of the industry.

The New Wood Pulp Allocation Plan

By Dr. Louis T. Stevenson, of the American Paper and Pulp Association

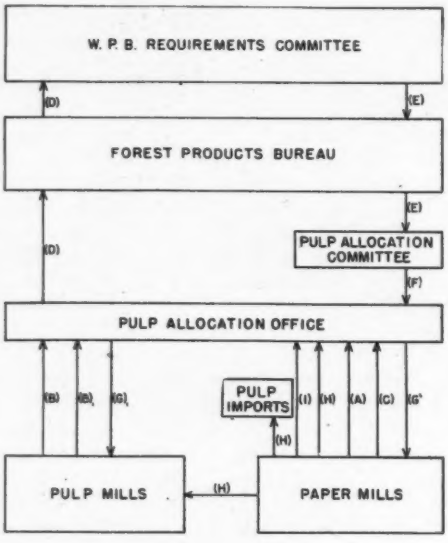
In discussing the new plan for the allocation of wood pulp which becomes effective on quarterly basis on January 1, 1944, Dr. Stevenson presented the following address at the November 29 meeting of the Salesmen's Association of the Paper Industry, held at the Cafe Loyale, New York.

Historically, paper is the lifeblood of our civilization. Go back to the year 1440 when paper and moveable type printing first teamed up, and count the progress since that date! It is our plain duty to our civilization to maintain and protect the operation of our paper mills. It is not necessary to emphasize these facts in this company, because they are well known to all of us. It is sometimes useful, however, to restate the obvious for the purpose of emphasis.

The new Pulp Allocation Plan has been outlined by the War Production Board, and it is clearly to our interest, as well as it is our duty, to put our shoulders to it and do our utmost to make it operate smoothly. You members of this group can be of inestimable help by securing the active cooperation of your cusomers.

New Pulp Allocation Plan

In its scope and conception, the plan is quite simple. The accompanying chart shows it in graphic form. The paper mills file applications with the Pulp Allocation Office for their estimated requirements of pulp for the first quarter of 1944, on Form WPB 2973.



EXPLANATION

(A) Form WPB 2973 - Paper Mill Quarterly Application for Allocation of Pulp
(B) Form WPB 699 - Part I - Quarterly Wood Pulp Mill Report
(B) Form WPB 699 - Part II - Monthly Wood Pulp Mill Report
(C) Form WPB 698 - Paper Mill Monthly Pulp Report
(D) Classified Estimates of Pulp Supply and Pulp Demand with Production Recommendations
(E) Production Determination Classified by Paper Grades
(F) Recommended Pulp Allocations to Individual Mills (must conform to E)
(G) Form WPB 2973 - Specific Pulp Allocation to Individual Mills (must conform to E)
(G) Form WPB 699 - Part I - Quarterly Authorization of Shipments to be made by Pulp Mills
(H) Form WPB 697 - Pulp Purchase Requests
(I) Form WPB 3358 - Paper Mill Quarterly Report of Machine Production

PULP ALLOCATION PROCEDURE
(As of November 29, 1943)

The pulp mills file an estimate of their production by grades at the same time for the same period. The job of reconciling the two to establish a balance between the supply and demand is passed up to the Requirements Committee of the War Production Board. This is the very same Committee that has so ably administered the same function in the Controlled Materials Plan. It has brought order into the distribution of steel, copper, and aluminum.

The Requirements Committee passes its determination to the Pulp Allocation Committee through the Forest Products Bureau in the form of broad general directives, by grades of paper and end uses. These are translated into individual mill allocations by the Office of Pulp Allocation under these directives and with the advice of the Pulp Allocations Committee.

The procedure, as you will see, is rather simple. It is the infinite detail that raises up complications.

Required WPB Forms

Two forms have been sent to the mills, WPB 2973 and WPB 3358. Form WPB 2973 is an application for allotments of pulp for the first quarter of 1944. Form WPB 3358 is a statement of the total shipments of paper by grades for the third quarter of 1943, analyzed by group classifications of end uses. Each of these forms has two main sections:

1. Grades of paper as listed in WPB 2973
2. Group classifications of end uses.

It is essential that each of these be carefully studied and understood. The analysis depends upon: first, an exact determination of the grade, and, second, a careful determination of the tonnage of that grade in each group classification.

Determination of Grades

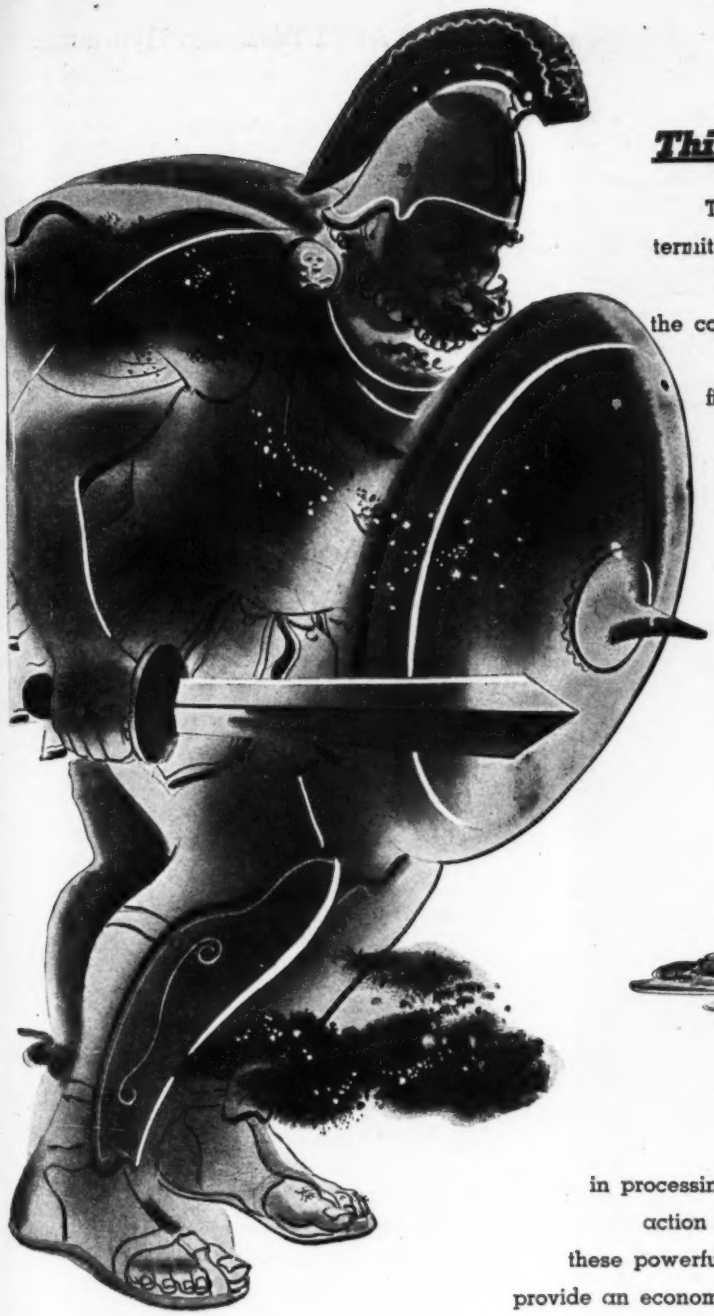
The grades listed must correspond with the listings on Form WPB 2973. This is a bulky form, but the grade classifications are being listed in booklet form by the National Paper Trade Association. We have suggested to the mills that they advise each customer of the grade designations for the grades it makes. This will be adequate in a great many cases. It is expected that the National Paper Trade Association booklet will serve in other cases. It is to be distributed to all of their members and all of our members.

Group Classification of Consumers

Group classifications are set up in a "Group Classifications Guide, WPB 2973 and WPB 2974." The WPB 2973 is used by paper mill consumers of pulp and WPB 2974 by non-paper consumers. This discussion deals only with paper mill consumption. The Group Classifications are divided in the Guide into four sets of groups, each set depending upon the grades of paper reported. The first set has eight groups, and the second set has eleven groups. These two sets include all paper and board except certain building papers. It is these two sets which engage our attention.

Reporting Forms

In consultation with the Divisional Association



This War Will Last Forever

The war against mold, decay, germs and termites is your daily business. It is important business—business that doesn't wait—for the cost in both time and materials runs high. To help in this endless industrial fight against fungi and bacteria, Dow has developed a series of 17 chlorinated phenolic derivatives—the *Dowicides*. These products have proved their value in many fields—paper, leather, paint, lumber, textile, and many more.

Dowicides are employed in finishing compositions and in processing operations. In all cases, the inhibiting action is thorough and dependable. Investigate these powerful germicides and fungicides today. They provide an economical and effective way to improve manufacturing operations and make vital materials last longer.

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN
New York • St. Louis • Chicago • Houston • San Francisco
Los Angeles • Seattle

IN THE PAPER INDUSTRY: Protective Services Provided By Dowicide—Preservation of lap and pulp stock—Dowicide F or G; longer felt life—Dowicide G; preservation of mold-resistant paper products—Dowicide A, B and G; prevention of decay and termite attack—Dowicide G; for reducing maintenance costs—Dowicide 7, preserves structural timbers. Write for full details.

DOWICIDE

GERMICIDES AND FUNGICIDES

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

Secretaries and in cooperation with the National Paper Trade Association, we have worked out suggested Customers' Reporting Forms.

Form X Covers the first set of eight group classifications for newsprint, groundwood, book, fine, special industrial, sanitary, tissue other than sanitary, and absorbent papers; also E-4 cardboard, and G-3 miscellaneous board.

Form Y Covers the second set of eleven group classifications for wrapping and multi-wall and shipping sack paper and container board, folding boxboard, and set-up boxcards.

Two Sets of Facts Required

Two sets of facts are required in order to fill out these forms: first, the grade of paper as listed in WPB 2973; and, second, the distribution, by tonnage, of the paper in that grade over the correct group classifications *for the grade*. The tonnage for each group is entered in the proper column opposite the proper item number and grade of paper and paperboard. The total for each grade is entered in column (a12).

Period Covered

Period Covered: These forms (X and Y) are to filled out at the present time for the period from July 1 to September 30, 1943, (third quarter). The National Paper Trade Association is preparing a comprehensive set of instructions to its members for filling out these forms. It is expected that once the third quarter of 1943 report is out of the way, these two forms will be used by merchants in filing monthly reports. These will be facilitated by a small supplementary form (Form P), to be filed with each order indicating the group classification with tonnages, into which the order falls. This information may be typed on the order instead, if it seems more convenient.

Filing Schedules

The mills were required to file Form WPB 2973 for the first quarter by November 20. As the first authoritative statement of the procedure was made on November 11 and 12, it is clear that if the deadline was met, the mills, of necessity, had to do a "rough and ready" job or be very late in their returns. Either is unsatisfactory, but it is felt that the War Production Board authorities understand the situation and will make allowances. A start had to be made sometime and it is seldom smooth.

Form WPB 3358, reporting on the third quarter of 1943 shipments of paper, was also due about December 1. As it was impossible to get our forms into the mills' hands before November 29, it will be seen that a certain tardiness in these returns is inevitable. It is believed that ten or fifteen days leeway is not unreasonable under the circumstances.

A definite schedule has, however, been set up for future returns by Order M 93 and it seems reasonable to expect that the schedule will be met in the future.

Cooperation Urged

It is certainly a privilege to address the Salesmen's Association on such an important matter. I most earnestly urge you to get back of this and help to put it over. It is a selling job that you, of all the groups in the industry, are best able to do. We cannot temporize or stand idly by when the lifeblood of our civilization is threatened.

Delaware TAPPI Discusses Hydraulics

The study of hydraulics as it applies to paper mill operation was the subject of a lively discussion at the regular monthly meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry in Philadelphia on December 3rd.

In his introduction of the subject, E. T. Street of the Downingtown Manufacturing Company stated that the laws of hydraulics applied to the flow of both liquids and gases so that the effects noted in a film made of a study of air flow could logically be expected in the handling of stock suspensions and water in pulp and paper manufacture. The moving picture, which was shown through the courtesy of the Buell Engineering Company, was made in Holland before the war to aid in the development of a dust recovery system. It illustrated the flow characteristics of an air system as they are affected by differences in velocity, obstructions of varied design, changes in direction, etc. Mr. Street emphasized that although the behavior of pulp in suspension did not conform to the theoretical conditions, the laws of hydraulics could be generally applied after certain reservations were made. Differences in opinion were expressed in the discussion as to the application of the effects made apparent in the film in regard to such subjects as head box and slice design.

Those attending the dinner preceding the meeting were: Arnold J. Barea, Dorothy A. Beiswinger, Chris F. Bingham, Richard T. Bingham, Alan R. Boyd, F. W. Brainerd, K. W. Britt, Amos D. Bittner, Joseph D. Clark, C. M. Connor, O. C. Cordes, H. M. Donnelly, J. Edward Doyle, Paul Easton, Jacob Edge, J. M. Farnum, Jeanne H. Fisher, E. N. Glauner, Samuel Hagner, Lois V. Hans, J. C. Harper, Jr., Harry Hulmes, Ralph Knoll, George J. Lane, Willard H. Lapp, Ethel Leithold, A. A. Lofquist, Lester Long, J. Macadam, G. B. Martin, Louise McGrath, H. C. Merritt, Lewis B. Miller, Edward C. Molin, Edward H. Morris II, A. H. Nadelman, R. Pennock, R. J. Proctor, J. H. Purcell, Homer F. Ray, John Roslund, Claude J. Ryder, F. M. Sangar, J. Carl Schmidt, John K. Staats, E. T. Street, R. T. Stuart, Jr., R. Temple, Roy Underdown, G. C. Walton, Kingdon R. Watt, A. E. Waugh, Almeron W. Wickham and Raymond E. Wilcox.

Forestry After the War

VANCOUVER, B. C., December 4, 1943.—Addressing the Victoria, B. C. section of the Canadian Society of Forest Engineers at a recent meeting, Chief Forester C. D. Orchard spoke on "The Place of Forestry in the Post-war Rehabilitation Program."

Mr. Orchard stressed two functions of rehabilitation: first to provide work immediately a surplus of manpower occurs, and secondly to provide for final reestablishment of returned men and war workers.

First requirement must be met by the government, Mr. Orchard said; the second mainly by industry with help from government.

Planning of rehabilitation work has reached the detailed stage, based upon accurate information—where and how much, the manpower and equipment necessary, and costs have been worked out and some 4,000,000 man days of work per year is laid out now in detail.

THANKS TO CHEMISTRY—Industrial Chemistry has helped create history's finest safeguards for military personnel. Wyandotte Chemicals Corporation services half a hundred industries with materials vital to war . . . and peace.

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Offices in Principal Cities

Wyandotte Chemicals Corporation consolidates the resources and facilities of Michigan Alkali Company and The J. B. Ford Company to better serve the nation's war and post-war needs.

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Soda Ash • Caustic Soda • Chlorine • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Dry Ice • Aromatic Intermediates • Hydrogen

Obituary

John Painter

John Painter, 92 Worth street, Fulton, N. Y. died at his home on October 30. Mr. Painter, or Jack, as he was known to the paper trade, was 77 years old and very well known to all papermakers.

Coming to this country from England as a young man he was immediately naturalized and has worked continuously at the paper trade for over 60 years having been connected with the E. B. Eddy Co. of Hull, Canada; The Granby Paper Company, Fulton, N. Y.; The former Mars Paper Corporation of Westfield, Mass.; and the Peter J. Sweitzer Co. of Elizabeth, N. J. working in the capacity of superintendent and general manager. Mr. Painter retired several years ago from active work but has been called as consultant in many cases by different manufactures. During his long association with the paper industry Mr. Painter made many friends among his associates as well as among the wire and felt manufacturers.

Garrett D. Bowne

Garrett D. Browne, manager, General Mills Electrification Section, Industrial Department, Westinghouse Electric and Manufacturing Company, East Pittsburgh, died suddenly at his home in Sewickley, Pa. on November 13.

Mr. Bowne entered the apprenticeship course of the Westinghouse Company immediately following his graduation from Trinity College, in 1906. Upon completion of this course 18 months later, he was granted a leave of absence to take a special engineering course at Columbia University following completion of which he joined the industrial sales department of the Boston Office. In 1912 he was placed in charge of the textile industry electrification and in 1915, paper mill and general mill electrification were also assigned to him. He was transferred to East Pittsburgh in 1931 at which time he was appointed manager of the general mill electrification section, a position he held until his death.

Mr. Bowne was the TAPPI representative of Westinghouse, was an active member of the American Pulp and Paper Mill Superintendents Association Inc., was active in textile affairs, and had been a frequent contributor of technical papers to various engineering societies and industry periodicals.

Harry G. Heaney

Harry G. Heaney, sales representative of the American Manufacturing Company, Brooklyn, passed away at his Beacon, N. Y. home after failing in health over a period of many months. He finally succumbed to a severe case of anemia November 23.

Mr. Heaney was born in the ol dvillage of Matteawan November 10, 1873. After his graduation from Matteawan High School, he started his business life at the age of 17 by teaching at the Wiccopee public school. Later he continued his profession at Freeport, Long Island, and subsequently entered the employ of the Long Island Railroad Company in the express department where he remained until 1902. In that same year he joined the sales staff of the American Manufacturing Company, covering the Cordage jobbing trade in New York City, in which territory he operated until the time of his illness this year. He had a wide circle of friends in the paper and cordage distributing field.

Mr. Heaney's dominant interest outside of business was as president of the Board of Education of Beacon, an office he filled with devotion and distinction for 12 consecutive terms. He was not inclined towards fraternal organizations.

He is survived by his wife, a son, Howell J. Heaney, a Private First Class, stationed at Cochrane Field, Georgia, and a daughter, Miss Janet M. Heaney, who is Assistant Dietitian at Springfield City Hospital, Springfield, Ohio.

Leonidas Beck

Leonidas Beck, wholesale paper dealer, associated with the J. L. N. Smythe Company, 16th and Callowhill streets, Philadelphia, Pa., died December 4 at his home, 107 Montgomery avenue, Cynwyd. He was 66

For several years, Mr. Beck lectured at the Wharton School of the University of Pennsylvania. Surviving him are his two sons, Major Richard H. Beck of the Army Air Forces, and Carl A. Beck of Honolulu; two sisters, Annie S. and Adele M. Beck, and a brother, Charles J. Beck, all of Philadelphia.

Funeral services were held at the Oliver Bair establishment, 1820 Chestnut street. Interment was private.

Creates Technical Paper Staff

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 8, 1943.—The War Products Development Section, formerly a part of the War Production Board Pulp and Paper Division, has been designated the Technical Staff and assigned to the Paper Division, under Rex W. Hovey, director, WPB announced today. Administratively it is set up on a parallel with the assigned staff, including Army, Navy and legal representatives, and the joint Forest Products Bureau staff, composed of the Distribution, Labor and Transportation Sections, and will report directly to the division director, it was announced by R. J. Zaumeyer, chief of the Technical Staff.

It will serve the operating branches of the Paper Division, which have been set up as follows:

Fine Paper Branch, divided into the Newsprint, Book and Groundwood Paper, and Writing Paper Sections.

Coarse Paper Branch, composed of the Kraft, Industrial Paper, Specialty Paper, Glassine and Greaseproof Paper, and Tissue Paper Sections.

Converted Paper Products Branch, including the following sections: Sanitary Paper, Stationery, Waterproof Paper, Gummed Tape, Impervious Paper, and Miscellaneous Converted Products.

The functions of the Technical Staff are (1) to render technical service to the Paper Division and other divisions and agencies; (2) to facilitate vital development work on paper by the armed services by clearance to laboratories, through task groups, or otherwise; (3) to cooperate with the Distribution Section with respect to orders covering chlorine, casein, glue, titanium dioxide, and other materials; (4) to assist in educational and publicity work; (5) to cooperate in conservation, standardization, and simplification activities; (6) to maintain close liaison with the armed services on technical problems and, to some extent, on procurement, Mr. Zaumeyer said.

Paper Men Appointed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 8, 1943 — The resignation of Agner B. Hansen, of Green Bay, Wis., as chief of the WPB Pulp Production Office, was announced last week by Harold Boeschenstein, acting director of the WPB Forest Products Bureau. Mr. Hansen organized the Pulp Production Office and established regional pulpwood representatives in the several regional offices of the WPB, in an effort to coordinate Federal and industry activities in increasing the cut of pulpwood, Mr. Boeschenstein said. After four months' service, Mr. Hansen has resigned to return to his own company, the Northern Paper Mills, of Green Bay, of which he is president and general manager.

At the same time, Mr. Boeschenstein announced the appointment of James L. Madden, vice-president of the Hollingsworth & Whitney Company, Boston, Mass., as deputy director of the WPB Paper Division. As such, Mr. Madden will take over the direction of the pulpwood production program, formerly handled by Mr. Hansen through the Pulp Production Office. Mr. Madden has been active in the paper industry since 1934, when he joined the staff of the Hollingsworth & Whitney Company, which operates mills in Maine and Alabama and operates woodlands in Canada. For over a year he has been serving as a member of the WPB Wood Pulp Allocation Committee, which meets frequently in Washington in connection with the allocation of pulp to paper-making mills throughout the United States. His position as deputy director of the Paper Division, in charge of pulpwood production, will be coordinated with those of Henry G. Boon in the Fine Paper Branch and Harold O. Nichols in the Coarse Paper Branch of the Paper Division, as well as with the Paperboard Division and the Lumber Division.

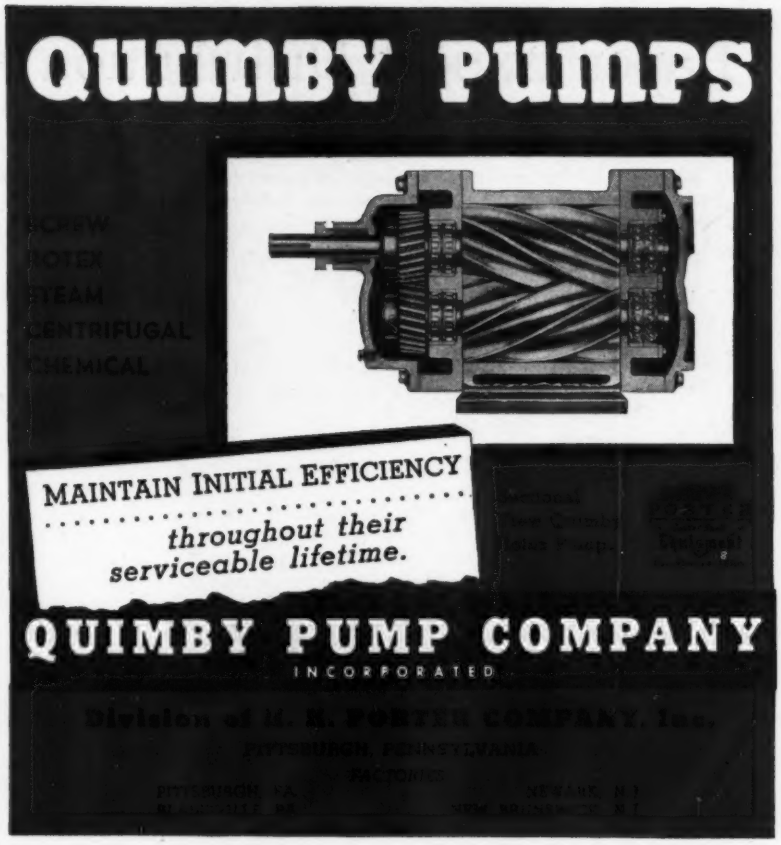
M. H. Collett will be assistant to Mr. Madden in directing pulpwood production. Mr. Collett, who has been handling pulpwood problems for WPB for over a year, is a graduate forester with experience both in private industry and with the U. S. Forest Service.

Three other recent appointments in the Fine Paper Branch of the Paper Division, announced by Rex W. Hovey, director of the division, today, were:

William J. Ward, executive vice-president of the Watab Paper Co., of Sartell, Minn., and a resident of Evanston, Ill., has been designated as chief of the Groundwood Paper Section.

Harrison Baldwin, vice-president in charge of sales of the Hammermill Paper Company of Erie, Pa., has been appointed as chief of the Writing Paper Section. He has been engaged in the paper business for 29 years and prior to that was a newspaper man.

Richard Wortham, of Scarsdale, N. Y., general sales manager of the Perkins-Goodwin Company, and a director of the Southland Paper Company of Lufkin, Texas, is chief of the Newsprint Paper Section.



Speaks for Export Trade

Speaking recently before a group of mill executives at a Park club gathering at Kalamazoo, Mich., to Eli de Vries, president of Parsons & Whittemore, Inc., New York, urged immediate preparation for post war export trade.

"Some people make the mistake of comparing postwar conditions with those of the prewar world," said Mr. de Vries. "The war has accelerated the industrialization of India and China and the prospective demand for our commodities in these two countries alone will be enormous.

"German producers will be smashed utterly and it will take a long time for them to revive their foreign markets. I anticipate that the Soviet Union will take over or at least dominate the Baltic countries and a large part of Finland and that these countries will be forced out of the world market in supplying Russian needs.

"I have traveled extensively throughout the world for the last 35 years, and wherever I went I found that American papers enjoyed the highest reputation. The label 'Made in the USA' means a great deal to foreign buyers. Cultivating good-will in the foreign field is a day-by-day, hour-by-hour business."

But time is of the essence, he asserted. American manufacturers must be ready as soon as the war ends and must prepare now. The grant of export premiums which prevailed in Germany and the Scandinanavian countries must and will be prohibited by international law. The practice of "dumping" while protecting home markets will be stopped, de Vries believes. America will no longer extend ships and credits to those nations which seek to "kill the market." That he sees as one of the war aims of the United Nations.

Paper Export Distribution After the War

By Frank W. Smith, Vice-Pres., National Paper & Type Co.

Frank W. Smith, vice president of the National Paper and Type Company and secretary-treasurer of the United States Paper Exporters Council, Inc., recently delivered a very interesting address on "Paper Export Distribution in the Post-War Period" before the meeting of the Paper and Paper Products Industry Group at the National Foreign Trade Convention. After emphasizing that little time remained for every one in the export business to consider post-war problems, Mr. Smith spoke in part as follows:

While the export of American-made paper is not an old business when judged by European time standards, it is, nevertheless, a rather old business for our rather young country. I can well remember the tales told by some of the old traveling salesmen in my own company about some of their adventures in Latin America years ago. Tales of traveling by muleback for days on end through various countries, tales of existing on fried eggs and bananas and nothing else, in some miserable inn, tales of traveling for fourteen days on a flat bottom river steamer. These men, and other salesmen were doing one thing, selling American paper and paper products to buyers, who never before had dealt with America. All long-established paper export merchants have gone through the same struggles, and one would think that such efforts should be accorded the wholehearted support of the mills from whom we draw our supplies.

Not Export Minded

Unfortunately, however, many paper manufacturers in this country are not what might be called "export-minded." There are many exceptions, of course; mills whose sales policy is backed up by ethics and real vision, and who reap the benefits that derive from considerate business conduct. The legitimate paper export merchant makes every effort to support his mills, to sell their grades and laboriously establishes American-made paper in markets that are traditionally European, against terrific price competition, and such effort should bespeak mill support rather than mill competition. When one realizes that export paper tonnage, developed by the legitimate paper export merchant, is just so much additional tonnage literally handed to the mills on a silver platter, without selling expenses or credit risk, it makes one wonder why mills do some of the strange handsprings that they indulge in during normal times. Perhaps we should lay it to the lure of the tropics or the sales manager's desire to dance the rhumba in Havana, or to see the sights in Mexico.

I well remember one amusing case; the manager of a mill with whom I do a great deal of business and who I know has a high regard for my own company's efforts, took a vacation trip to Central America. While there, and having nothing to do one sunny afternoon, he strolled in to the local lithography plant, introduced himself as a paper manufacturer, and managed to sell several tons of his product, which he made and shipped and billed on a direct basis. It never occurred to him, as he later admitted, that we had our own representative in that city, whom he never called on, incidentally. The incident was never repeated, but it emphasizes, with all due respect to any paper mill representatives who may be present, a remark that I heard made many years ago by a highly regarded member of the paper industry to the effect that paper was probably the "best made commodity and the most poorly sold product in the U. S. A."

I am quite willing to look on this problem, as I am sure you all are, from a realistic angle. I would be the first to admit, and I say this from sad experience, that there are some grades of paper that cannot possibly be sold through the paper export merchant. I refer, first of all, to newsprint as sold to large foreign newspaper publishers. We might possibly also include some grades of box board such as test liner and perhaps such items as wall board, insulating materials and similar specialties. Our functions as merchants are not, generally speaking, geared to this type of business. World competition precludes our having a slice of these cakes, unless our business is specially prepared to handle large tonnage business on a very small sales commission and at no inconsiderable credit risk, particularly in the case of sales to politically controlled foreign newspaper publishers.

What the Reliable Export Merchant Offers

Let us take a moment to review what the reliable paper export merchant actually offers to the foreign buyer and what sales services he performs for the mills, and why he is entitled to a fair profit. A printer in Johannesburg, South Africa, or a lithographer in Caracas, Venezuela, or a magazine publisher in Buenos Aires, or a paper bag manufacturer in Bogota, can, by just lifting his telephone immediately contact right in his home town a reliable and expert representative of several reliable American paper export merchants. If he wishes to buy some bond paper, some label paper, some magazine printing paper or some kraft bag paper, he will immediately have at his disposal expert advice, samples, prices and a complete willingness to handle his requirements on normal credit lines. He does not have to write out numbers of letters or send cables or ask a friend where to buy the paper he requires. His order is filled with a reliable quality; the price is reasonable; the packing is adequate; shipment is made promptly, and careful attention is paid to all the minute details involved in the export of paper. This may all sound quite normal in a domestic transaction, but let us take a look back of the switchboard.

Facilities Required

To carry through such a transaction requires that a paper export merchant have all of the following:

1. An organization with many years of export experience.
2. Complete knowledge of all paper producing countries throughout the world.
3. An adequate staff of well-trained people familiar with conditions in the markets where they operate and versed in the languages used in those countries.

4. Sufficient funds to finance any and all operations.
5. Proper mill connections.
6. Willingness to undertake foreign exchange risks.
7. Reliable foreign representatives situated in all key cities in the countries where the merchant normally operates.

I might go on forever along these lines. I will make no mention of the minor functions, such as complicated shipping details, preparation of consular documents and a veritable mass of details, which no paper mill in its right senses would even wish to contemplate. Such an organization, and there are many such in this country, even though we have not been export merchants as long as our European competitors, can hardly be economically maintained by paper manufacturers. Paper distribution in the United States could never have reached its present state without the logical growth of the hundreds of domestic mill distributors and agents, and I submit that the future of American paper qualities in the export field can never prosper and grow strong without firm and wholehearted mill support of the export paper merchant and proper mill support of the export merchant's efforts.

What Lies Ahead

We can hardly guess at what lies before us in the way of competitive conditions when the present conflict is ended. We Americans have a reputation of riding on waves of prosperity and struggling through the troughs of depression—perhaps we do so realizing our nearly inexhaustible resources. However, if we are to be successful export merchants, we should take some time out to plan for the future. England is doing it—they started over fifteen months ago to plan the future of their export trade. It is their very life blood, and they cannot be criticized for planning now for the future. Paper Mills in a certain neutral country are, even now, booking paper orders to be confirmed after the war. I do not doubt but that Germany even with defeat staring her in the face is planning post-war export problems.

Exporting calls for long distance planning. I can only talk in generalities, but I can foresee the following problems that will certainly face us:

1. A strongly competitive situation, particularly with regard to the Scandinavian paper producing countries: Sweden, Finland and perhaps Norway. Russia may be a factor, but that is obscure as yet.
2. An intensive effort made on the part of Canada to develop an export paper business on a direct mill selling basis rather than through American export paper houses, who formerly sold whatever Canadian paper was exported to countries outside the British Empire.
3. A closely-knit airtight situation with the British Empire with little or no opportunity for American paper exporters to sell their products to member countries of the British Empire.
4. A possible tendency on the part of some American paper mills to go after large tonnage business on a direct basis. This may be spasmodic, as it has been in the past, but it is, nevertheless, a probability rather than a possibility.
5. An increase in the local paper manufacturing facilities throughout Latin America with particular emphasis on Brazil, Mexico and Argentina.

What Can Be Done

Now, what can we do to combat these unfavorable conditions? We cannot of ourselves stop these trends, for they are beyond our power to control. We can improve our own particular set-up in possibly the following ways:

1. Band together in a cohesive, cooperative group for the protection of our own interests.
2. Correct those weaknesses that have prevented the fullest possible development of our business. By that I mean such things as securing the best possible foreign representatives, quoting fair prices, improving our service to our customers, promptly and fairly settling claims, building confidence between the buyer and seller, making every effort to handle only quality merchandise, advertise intelligently what we have to sell and to really demonstrate to foreign paper buyers that the American way of business is a sound and worthy ideal. This is not flag waving; it is just good old-fashioned business sense.

There are other things we can do, fields which have been untilled in the past. I refer to what we call "specialties" in the paper trade. This angle of our business has been somewhat neglected, and the export paper merchant has hardly scratched the surface of a very profitable business. Competition is keen on the more currently used paper items, such as bond and book papers, and buyers jump around from one supplier to another for a few cents difference. Such is not the case with specialties, for once you develop a special grade that is satisfactory, the user or converter is not generally willing to change sources of supply. The field is unlimited, and it is sure to grow, because new uses are being found daily for paper for all sorts of unusual purposes.

Develop the Service Angle

We can develop the service angle. There should be a tremendous post-war development in water and air transportation. We should be able to reach foreign markets (outside of Continental Europe) much more quickly than our European competitors. This situation should give us an advantage that may offset to some degree lower prices on European qualities.

We can establish in the minds of foreign paper buyers that there exists a reliable group of American paper export merchants vitally interested in maintaining the integrity of their business. We can endeavor to establish cordial relations and understanding of mutual problems between members of the trade, our customers and paper manufacturers. We can maintain standards of efficiency and fair dealing. We can establish uniform trade practices as have the Scandinavians. In short, we can really become just as important a factor in the export of paper as have the Europeans, if we will only realize our obvious weaknesses and seek to correct them.

The post-war world will be a new world, we hope. It will certainly be a world of new ideas and possibly fewer artificial trade barriers. It will be a world of more prompt communications, and Moscow and Buenos Aires will only be week-end hops from New York. The world will be wanting materials, and paper — American-made paper — will surely find its place in the proper scheme of things.

President Nelson Reports on Paper Board

In his report of activities of the past year, Charles E. Nelson, retiring president of the National Paperboard Association, at the annual meeting held at the Waldorf-Astoria Hotel, New York, November 18-19, 1943, said in part as follows:

The attitude of the WPB toward the paper board industry during the past year and a half has undergone a drastic change.

On October 31, 1942, just a little over one year ago, the WPB, through Order M-241, froze the production of paper board to the average of a six months' period from April 1, 1942 to September 30, 1942, and prohibited the production of board in any mill which had not produced board since August 1, 1942.

We recall the successive changes which Order M-241 has undergone from the original curtailment of mill production to the Amendment of August 4, 1943, which lifted all restrictions on the manufacture of paper board. As of today's date, the WPB not only does not want to restrict the production of paper board, as it was restricting it one year ago, but is actively encouraging the production of as much paper board as is possible. The WPB has now come to a complete realization of the fact that far more board is now needed than is now being produced.

Because of the present shortage of paper board, the WPB has put into effect many orders which restrict the use of paper board and containers made of paper board. These restrictive orders seriously affect the business of our converter customers, and it is not likely that these restrictions can be alleviated until there is an appreciable increase in the production of paperboard or until there is a reduction in the quantity of paper board containers going out of the U.S.A.

Regardless of any mistakes of judgment in the past and regardless of where the fault lies for today's situation, which is one of scarcity of paperboard both for military and essential civilian uses, it is up to us as members of the paper board industry to bend ourselves to that important task of getting out as much paper board as is humanly and physically possible.

Fulfillment of Government Orders

There is one thing each and every one of us can, and must, do to help bring victory and that is, accept and fulfill without any delay each and every order we receive for paper board for delivery to the government and government contractors. Let us not have a recurrence of the recent situation where some mills had to be coaxed to get them to take their share of the shell container board business. A refusal to act promptly on receipt of a Government order gives our industry a black eye. There should be, and there must be, full publicity regarding those few people who refuse to cooperate in the acceptance of Government business. Your Association cannot force any mill to accept these orders, but as individuals it is our duty to report dereliction of duty, or greed, on the part of those few mills who prefer to serve pet customers. Voluntary action on the part of the mills in filling these orders must be had. If there be failure to act promptly, the WPB or other governmental agency will surely enforce the fulfillment of these orders. In lieu of government enforcement the members of this industry must act, and act quickly, on a program whereby each mill will accept its share of this government business. By following a program along this line, each paperboard mill will, after having first filled the government orders, have some part of its capacity for use in supplying essential civilian demend.

Problems Arising From Shortages

During the period prior to December 7, 1941, and up to about one year ago, we and our customers were striving with all our facilities and our knowledge to develop satisfactory grades of board and satisfactory containers to be substituted for such critical articles as metal cans, and wood boxes. We fully realized that the substitution of a unit of paper board for a unit of iron, steel, or aluminum or wood would be a most effective and substantial contribution to the war effort. The carrying-through of this program has been accompanied by serious shortages of raw materials.

The additional burden placed upon the paper board industry to supply materials for use in the war program and for essential civilian demand has been back-breaking.

To produce paper board we must have raw materials, manpower, manufacturing equipment and know-how. The absolutely necessary raw materials are pulp and waste paper.

The producers of pulp have truly been up against it. When pulp imports from Europe ceased, they had to endeavor to take up the slack, and North America found it necessary to become self-sustaining insofar as pulp is concerned, and on top of this was called upon under Lend-Lease to share its pulp with England and South America. The pulp producers were and are confronted with manpower shortages; they have lost much of their own labor, and the labor of the suppliers of pulpwood, to the war plants. The temptation for the workers to migrate to jobs at wartime wages in ship yards, munition plants, and factories producing war goods, coupled with the fact that draft deferments are easily obtained for war plant employees, was just too much. The result has been that not enough pulp has been produced and accordingly pulp is under complete allocation by the War Production Board. Also, in the opinion of many, the policy of the Office of Price Administration in holding down the ceilings on pulpwood and pulp has further contributed to the scarcity.

During the past few months the waste paper situation has become increasingly acute. In the past there was always plenty of waste paper to be had at a price. Today, however, in spite of a well organized save-wastepaper campaign, which has the active support of the Salvage Division of WPB and other governmental agencies, the collections are insufficient. One fundamental reason why collections continue to fall below the needs lies in the fact that a tremendous tonnage of V-shipping containers and other paper and paper board materials are being shipped overseas in connection with the military effort and lend-lease, which otherwise would have found its way back into the wastepaper market. For illustration, the tonnage of paper board consumed for V-solid fibre boxes for export and storage during the month of September 1943 was 36,000 tons, or about 9,000 tons per week, and the production of these V-solid fibre boxes

scheduled for October was over 48,000 tons, or about 12,000 tons per week. There is also some tonnage of corrugated boxes shipped out of the U.S.A., as well as an appreciable tonnage of folding boxes, wrapping paper and other paper and paper board products, practically none of which is returned to the U.S.A. In addition, approximately 9,000 tons per week are required during the next three months to be used in the manufacture of containers for large and small ammunition, for bomb bands and for other paperboard products subject to WPB directives. These products too are shipped overseas or are placed in storage, with the result that this material is also not available for recovery as waste.

The Next Questions

The paper board industry is thus faced with this situation, where its principal raw material is not available in the quantity necessary, at the prices fixed by the Office of Price Administration. The next questions which obviously arise are:

(1) Is a sufficient quantity of waste paper available at any price, and if so, at what price? and

(2) If so, what action will the WPB urge upon the Office of Price Administration with respect to ceilings on waste paper and relief to the paperboard mills in the event the higher prices required to bring out the needed volume of waste paper reduce paperboard production generally and in the case of marginal mills perhaps force them to discontinue producing? and

(3) If the ceilings on waste paper and paper board are increased, will action be taken to grant relief to the converters by increasing the ceilings on converted products by the increased amount the converters pay for paperboard?

While I do not think that we as paper board mill operators are responsible for today's situation, unless it be that when we saw an impending shortage of paper board in the offing, we failed to make a sufficiently determined protest to the WPB and the OPA, we nevertheless are confronted with it.

We truly realize that paper board is badly needed for many important end-uses, and that it is our duty to produce as much tonnage as we possibly can.

We are willing to pay whatever price is necessary to bring out the raw materials and we will continue to pay that price to the full limit of our ability. However, we must point out to both WPB and OPA that the "last straw will break the camel's back."

Our most critical need is about 8,000 to 10,000 tons per week of waste paper over and above the quantity now being received.

One matter which I think we should explore to its full limit is whether or not the waste paper dealers have made every possible effort to increase their collections, or whether or not they are content with the reported black market situation which is described in a release by the Office of Price Administration, dated October 26, 1943.

Situations Truly a Mess

Manifestly today's waste paper situation is truly a mess. Whoever has the brains and the ability and the power to correct it, be it the WPB, the OPA, the paper board mills or the paper stock collectors, some or all must act. We have a responsibilty and we must do our share. Let us face facts and let the chips fall where they may.

New Foxboro Valvactor

New capabilities, as well as new convenience and sturdiness, are featured in a new Foxboro Vernier Valvactor, just announced by The Foxboro Company, Foxboro, Mass. The Foxboro Vernier Valvactor, familiar to users of control instruments in every field of industry, is a micro-positioner for pneumatic motor valves. It is used to insure precise and dependable valve response, especially where operating conditions may make the response uncertain, slow, or unsatisfactory. It is actuated by air pressure changes as slight as the equivalent of ½ inch of water, and can compel valve stem movements as small as 1/1000 of an inch.

Continuing the same operating principles which have made the Vernier Valvactor so successful in eight years of widespread use, the new construction involves a completely different arrangement of the actuating elements. New ease and range of adjustment, especially for duplexing and sequencing, and new snap action, for relay service or step sequencing of valves or damper motors, are provided by new, convenient zero and range adjustments. New ease of reversal is provided, without change of parts or piping.

The new unit retains the outstanding advantage of relay action. Flexure type bearings, in place of pivots, eliminate the effects of mechanical vibration, without loss of sensitivity. Finally, although the Vernier Valvactor retains the same general external appearance, new ruggedness has been provided for it by a heavier metal case. Complete specifications of the new type unit will be furnished by The Foxboro Company on request.

Crown Zellerbach Makes Good Report

The Crown Zellerbach Corporation and its subsidiaries reported yesterday for the six months ended with October, net profit of $3,767,883, equal, after preferred dividend requirements, to $1.08 a share on 2,261,199 shares of common stock. This compares with $3,594,048, or $1 a common share, earned in the corresponding period last year.

Consolidated net sales for the six months' period this year, increased 17.7 per cent to $48,590,322 from the $1,275,754 volume a year ago. A large part of this gain, the paper manufacturing company explained, consisted of increased sales of purchased merchandise.

For the quarter ended on Oct. 31 last, the report showed a net profit of $1,928,181, or 56 cents a share, which compared with $1,790,901, or 50 cents a common share, for the October quarter a year ago.

A. C. Wiswall Goes to Washington

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, MASS., December 6, 1943.—A. C. Wiswall, president of the Consolidated Paper Box Company, Somerville, Mass., has been appointed director of the Set-up Paper Box Section of the War Production Board and is at Washington as a dollar a year man.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending December 4, 1943

STOCKS

	High	Low	Last
A. P. W.	2⅛	2	2⅛
Armstrong Cork Co.	37	35⅞	37
Celotex Corp.	11⅛	10⅜	11⅛
Celotex Corp., pf.	17¼	16½	17¼
Certain-Teed Products Corp.	5⅛	4¾	5
Certain-Teed Products Corp., pf.	60	57½	59½
Champion Paper & Fibre Co.	18½	18⅛	18¼
Champion Paper & Fibre Co., pf.	108	107½	108
Congoleum Nairn Co.	22½	21	22½
Container Corp. of America	19¾	19⅛	19¼
Continental-Diamond Fibre Co.	11½	10⅜	11⅜
Crown-Zellerbach Co.	15⅛	14⅜	15
Crown-Zellerbach Co., pf.	95¾	95	95¾
Dixie Cup Co.	14½	14	14
Dixie Cup Co.—A	43½	42	42¾
Flintkote Co.	19	18	19
Flintkote Co., pf.	....	....	....
Robert Gair	3¼	2¾	3¼
Robert Gair, pf.	13¼	12½	13¼
International Paper Co.	13⅛	12	13
International Paper Co., pf.	64¼	62¼	63¾
Johns-Manville Corp.	86	83	86
Johns-Manville Corp., pf.	126½	126½	126½
Kimberly-Clark Corp.	30½	29¾	30½
MacAndrews & Forbes	25	24½	24½
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	37½	36¼	37½
Mead Corp.	8	7¼	7⅜
Mead Corp., pf. A—6%	....	....	....
Mear Corp., pf. B—5½%	69	69	69
National Container Corp.	11¾	11½	11¾
Paraffine Companies, Inc.	45¼	42	45¾
Paraffine Companies, Inc. pf.	....	....	....
Rayonier, Inc.	13⅛	12½	13⅛
Rayonier, Inc., pf.	29⅜	29¼	29¼
Ruberoid Co.	24½	23¾	24½
Scott Paper Co.	38½	36½	38
Scott Paper Co., pf.	110	110	110
Sutherland Paper Co.	29½	29	29
Union Bag & Paper Corp.	9⅝	8¾	9½
United Paperboard Co.	4⅛	3⅞	4⅛
U. S. Gypsum Co.	70½	68	70¼
U. S. Gypsum Co., pf.	175¾	175	175
West Virginia Pulp & Paper Co.	15½	15⅛	15½
West Virginia Pulp & Paper Co., pf.	107	106⅝	106⅝

BONDS

Abitibi Pulp & Paper Co., 5s '53	63	63	63
Celotex Corp. 3¾s '55	101⅜	101	101⅛
Certain-Teed Products Corp. 5½s '48	100	100	100
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	106½	106½	106½
International Paper Co. 5s '47	....	....	....
Mead Corp. 3½s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending December 4, 1943

STOCKS

	High	Low	Last
American Box Board Co.	6¾	6¼	6¾
Brown Co., pf.	....	....	....
Great Northern Paper Co.	31½	28	28
Hummel-Ross Fibre Corp.	4⅛	3¾	4⅛
St. Regis Paper Co.	3⅜	3⅛	3¼
St. Regis Paper Co., pf.	136	136	136
Taggart Corp.	4⅝	4⅝	4⅝

BONDS

American Writing Paper Co. 6s '61	98½	98	98

National Container Nets $584,986

The National Container Corporation reports as follows for the nine months to September 30: Net profit after all charges and taxes, $584,986, equal to $1.77 a share, against $583,357, or $1.77 a share last year. September quarter: Net profit, $223,360, or 67 cents a share, against $165,298, or 50 cents a share, last year.

Flintkote Co. Declares Dividend

Flintkote Company has declared a divident of 25 cents, payable December 15 to stock of record December 10. Previous payment was 15 cents on September 15.

To Allocate Pulp on Quarterly Basis

WASHINGTON, D. C., December 8, 1943.—David Graham, Chief of the WPB Office of Pulp Allocation has announced the issuance of amended General Preference Order M-93 to place the allocation of wood pulp on a quarterly basis beginning January 1.

Heretofore, WPB has allocated wood pulp on a monthly basis. The changeover to quarterly allocation coincides with a revision of the reports received from the paper industry to include an analysis of the business done by each manufacturer in certain broad classifications of end uses and end users. This analysis is expected to provide the basis of a program determination for pulp and paper for the first quarter of 1944.

A. P. W. Paper Co. Earns $11,535

The A. P. W. Paper Company, Inc. reports as follows from July 1 to October 23: Net profit of $11,535 after depreciation, all interest and after providing $14,000 for Federal income taxes. Provision of $3,028 has been included as of October 23, last, for the additional contingent interest of 1 per cent on first mortgage bonds with warrants. For similar period last year company reported net profit of $2,188 after $38,000 reserve for contingencies.

Rayonier Reports Net of $769,198

Rayonier, Inc., and subsidiary reports as follows for the six months to October 31: Net profit, after $769,198 taxes, was $891,803, or 28 cents a common share, compared with $1,078,298, or 47 cents a share after $2,441,108 tax charges, for the six months ended with October, 1942.

Container Corp. Nets $1,363,583

The Container Corporation of America reports as follows for the nine months ended September 30; Net income $1,363,583, after taxes and charges, equal to $1.74 a share on 781,253 common shares; a year ago in $1,783,475 and $2.22 a share.

Robert Gair Pays 30 Cent Dividend

Robert Gair Company has declared a dividend of 30 cents, payable December 22 to stock of record December 10. Previous payment was 25 cents on December 10, 1942.

Gotham Paper Co. Buys Building

Malcolm P. Lewis, who heads the Gotham Card and Paper Company, has bought the two-story factory propertly at 177 Beacon Avenue, Jersey City, N. J. from the Nissen estate through J. I. Kislak, Inc.

Ruberoid Declares 70 Cent Dividend

The Ruberoid Company declared a divident of 70 cents, payable December 21 to stock of record December 10. Previous payment was 15 cents on September 28.

May Sell Lot to Pay Interest

WASHINGTON, D. C., December 4, 1943.—Approximately three and one-half years of overdue interest on the outstanding 3 per cent first-mortgage bonds of the District of Columbia Paper Mills, Inc., will be paid in the near future if plans just announced are successful.

In a letter to the bondholders, G. L. Nicolson, president, states that the company has an opportunity to sell for $55,000 cash a lot not needed in the present conduct of the business and if the sale is made the proceeds will be applied toward payment of the accrued interest on the $549,000 3 per cent first-mortgage bonds now outstanding. This would provide approximately $100 for the holder of each $1,000 bond.

"The management of paper mills and various bondholders who have been consulted believe that the price of $55,000 is reasonable and that it will be to the advantage of the paper mills and of all of the bondholders to have the proposed sale consummated," the letter states.

"The deed of trust, however, contains no provision authorizing the trustee to release part of the real estate from the lien of the deed of trust. In an effort to obtain such a release and authority to consummate the sale, the Paper Mills has had its counsel prepare a form of complaint to be filed in court and a copy thereof is inclosed herewith for your information.

"As therein shown, provision has been made recently for payment of interest on all outstanding bonds through the year 1938 and, if the sale is consummated, the court will be requested to authorize application of the proceeds of sale, $55,000, to the payment of interest on the outstanding bonds of the par value of $549,000 for the years 1939, 1940 and 1941, and to apply the balance toward payment of interest coupons due in 1942.

"Out of earnings Paper Mills has finally been able to pay a large amount of taxes in arrears due the District of Columbia government and is now current in its taxes," Mr. Nicolson states.

Hubbs & Hastings Open at Syracuse

The Hubbs & Hastings Paper Company, as of November 1., opened a sales office at 317 State Tower building, Syracuse, N. Y., which will be in the charge of Monte M. Wilkinson, who came with the organization the first of this year, after many years experience with the Orchard Paper Company, Midland Products, Inc., of St. Louis, Mo., and the Interstate Bag Company, Walden, N. Y.

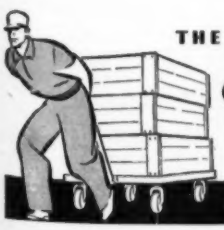
Mr. Wilkinson is moving his family to Syracuse this month, where he expects to make his home. This office will be conducted as a sales office exclusively. Monte is well known in the trade and the company believes that this new venture on its part is in very capable hands.

F. J. Bushemi to Manage Wrapping Div.

PHILADELPHIA, Pa., December 6, 1943.—The wrapping paper division of the Garrett-Buchanan Company in Philadelphia is now under the jurisdiction of Frank J. Bushemi. Aside from the problems of today, Mr. Bushemi is laying plans for his post war activities. The new manager of the coarse paper division is constantly investigating new ideas and products to be merchandised in his department.

We've learned a lot in 60 Years!

The "know how" gained in 60 years of business backs our statement that we can move your mill jobs and seconds more promptly and with greater efficiency. There's satisfaction in dealing with Sabin Robbins. Learn how our NATIONAL distribution means better service. Call us.



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NATIONAL DISTRIBUTORS OF PAPER MILL JOBS

Paper Substitutes For Critical Materials

The following contribution on the essential character of paper, issued by the Office of War Information, provides several examples of how the great utility of paper in various forms has been successfully employed to conserve the supply of more critical materials.

The white paper tag with the red cross on it which fluttered from America's buttonholes during the Red Cross drive last March was a dramatic acknowledgement that the country's materials have gone to war. Metal had a more important job to do than to make the familiar button indicating "I gave."

Today, although all these items are not yet in full distribution, it is possible that the case of the alarm clock which wakes the war worker, the hanger from which he takes his clothes, the base of the buttons with which he fastens his clothes, his lunch box, the wastebasket into which he throws his sandwich wrappings and the case of the flashlight he uses in his work may all be made of paper.

If he stops at the drug store on his way home and buys aspirin and toothpowder, they will like be packaged in paper containers. The string which ties them into a bundle may be paper, too. The baking powder and the shortening which go into his supper biscuits came in paper containers. So did the frozen fish and the shoestring potatoes.

The porch chair into which he eases himself after his meal may resemble rattan, but if it's a new one it may be of highly processed paper. So may be the rug under his feet. And he fills his pipe, not from a metal container of tobacco, but from one of paper.

More Uses of Paper in the Home

Meantime his wife could be putting the garbage into a paper garbage pail, brushing up into a paper dustpan, readying a late evening snack on a paper tray. She may then read a letter left in the paper mail box and sit down to enjoy a candy bar or piece of gum wrapped no longer in metal foil but in moistureproof paper. And at bedtime, if they so wish, they may retire under the light but warm protection of a blanket made of quilted layers of paper. This blanket, originated for use in case of air raid casualties, has been adopted by some thrifty households for use in summer homes. Its low cost means it can be discarded at the end of the season with no thought of packing in moth balls.

With the exception of the blanket, the rug and the string, all the mentioned paper household articles substitute for those usually made of metal. Wool blankets, of course, are still being made, though simplified as to size and color ranges. Sisal porch rugs are no longer permitted to be made. Rattan, imported from the Far East, is out of the picture for new porch furniture.

Paper Containers Save Tons of Steel

Containers represent the most widespread substitution of paper and paper board. Over 100,000 individual items are now being packaged in it and it is estimated that boxes alone will consume at least 200,000 tons of paper this year.

A net annual saving of 343,607 tons of steel and 4,000 tons of tin has been calculated as a result of paper packaging of such diverse products as tobacco, paint, toilet powders, auto supplies, cosmetics, dry chemicals, coffee, shortening and food. Paper wrappings, substituted for the lead foil formerly used on cigarettes, smoking and chewing tobacco, saved 40 million pounds of the foil.

Transfer of many items from metal into paper presented problems. Concentrated soup mixtures, for example, must not only be protected from air; they also contain grease. A heat-sealed bag inside of a carton is used. Tobacco requires moisture-proof containers. Liquids, such as motor oil, must be put into leak-proof containers and an impregnated paperboard is used. Baking powder is highly hygroscopic, or moisture absorbent, and now comes in a paper board carton with metal ends.

Metal containers for tooth, talcum and other types of toiletry powders used to consume 10,105 tons of steel annually. Now none is used. Paint cans formerly used 70,206 tons of steel. Now they manage with 28,200 tons.

Substituted for the former metal aspirin box which stood in almost every household medicine cabinet may be a folding paper board carton with a dispenser opening, while the metal box which used to fit the woman's purse now looks like a book of matches with an inner cellophane jacket, the end of which is torn off and the tablets thumbed out through the resulting opening.

Also out of the handbag now comes a paper-clad lipstick instead of the peacetime metal case. Made in many colors with a wide variety of design, these paper board lipstick cases are both attractive and durable. And paper tops replace the plastic tops used on cosmetic cream jars.

Some Significant Savings

Some significant savings effected by these paper substitutes include: Clothes hangers: nearly 1½ million pounds of metal. Alarm clock cases: 229.4 pounds of brass per 1000 clocks; 10.9 pounds of phosphor bronze per 1000 clocks; 15.0 pounds of aluminum per 1000 clocks and 312.2 pounds of steel per 1000 clocks.

Michigan Div. to Meet Dec. 16

The next meeting of the Michigan Division of the American Pulp and Paper Mill Superintendent's Association will be held on Thursday, December 16 at the Park-American Hotel in Kalamazoo. Dinner will be served at 6:30 P.M.

Merton S. Fogerty, power engineer with the Michigan Paper Company of Plainwell, Mich., will speak on "Paper Mill Engineering—An Aid To Better Labor Relations."

Edward Bailey Joins International

Edward Bailey, for many years with the Hollingsworth & Whitney Company, and manager of their fine paper division, is now with the New York Sales division of the International Paper Company.

Buy Asbestos Spinning Co.

The Asbestos Fibre Spinning Company, North Wales, Pa., has been purchased by Greene, Tweed and Co., New York, N. Y., manufacturer of Palmetto and other self-lubricating mechanical packings and also various mill supply specialties.

This consolidation brings together two companies of many years existence; Greene, Tweed & Co., having been established in 1863 and Asbestos Fibre Spinning Company in 1898.

Asbestos Fibre Spinning Company has been principally engaged in the manufacture of asbestos textiles such as yarns, cloth, rovings, tapes, packing, etc. By this acquisition Greene, Tweed & Co. will greatly enlarge its present line of asbestos products and will also have an excellent opportunity for further expansion.

Asbestos Fibre Spinning Company was established in 1898 by George Shafenacker and Christopher Huber, and throughout its long history has been operated by the same family interests. Greene, Tweed & Co. was one of their customers, having for 25 years purchased their requirements of asbestos yarn from them.

The positions of both Greene, Tweed & Co. and Asbestos Fibre Spinning Company in the asbetos field will be strengthened by this consolidation. Plans are now being made to enlarge the facilities and expand the operations of both companies.

No officers have been elected as yet; but O. W. Trumbull, vice president and general manager of Greene, Tweed & Co. will assume the same position with Asbestos Fibre Spinning Company. Mr. Trumbull, who is well known in manufacturing circles and the trade, has had many years experience in the manufacturing of asbestos textiles, packings, anu mechanical rubber goods; and his experience will be of value in the further development of these two concerns.

To Change Duty on Waterleaf Paper

WASHINGTON, D. C., December 8, 1943.—Representative Shafer of Michigan has introduced a bill (H.R. 3703) in the House regarding the tariff duty on waterleaf paper. The bill which has been referred to the House Committee on Ways and Means, provides: "That paragraph 1409 of schedule 14 of the Tariff Act of 1930 is amended by inserting after "blotting paper, 30 per centum ad valorem;" the following: "uncoated paper commonly or commercially known as waterleaf paper, suitable for use for the manufacture of vegetable parchment paper, 10 per centum ad valorem;".

Service Men Remembered by Acme Steel

Christmas bonus checks totalling more than $43,000.00 have been mailed to the 700 men and women of Acme Steel Company, Chicago, now in armed services. Those who were in Acme's employ for more than six months prior to their entry into the Army or Navy, will receive a bonus equivalent to two weeks' salary, or eighty hours' pay at basic hourly rates. Those with less than six months' Acme service will receive a check based on one week's salary, or forty hours' pay at basic hourly rates.

CHEMICAL SHOW REVEALS NEW DEVELOPMENTS

(Continued from page 7)

screen mills and air separators for classifying materials.

Corning Glass Works

The exhibit of the Corning Glass Works contained many new items, among which was featured new bacteriological filters in extra fine porosities, formerly obtainable only from Germany. Other laboratory items included the new Corning ball and socket joint for assembling apparatus, and new hex-base cylinders, beaded near the top. Also shown, in operation, was a "Corad" distilling head for wet and dry distillations, which unit has not been produced on a commercial scale before.

The industrial section included new developments in glassware, such as fabrication of 96% silica glassware for high temperature use, and a variety of piping, cylinders, jars and tubing. New developments in the company's "Pyrex" line were also displayed, including plate glass in large sheets suitable for high temperature furnace glazing. The display of glass piping incorporated a large assortment of adapter fittings and gasket materials now in use in Pyrex piping.

The Dorr Co.

The exhibit of The Dorr Company featured the theme of "Wartime experience and new tools for the solution of industry's problems of tomorrow"—how improved technology and Dorr contribution can serve industry. The major part of the display was devoted to the presentation of new tools for industry, consisting of recently developed Dorr equipment, processes and facilities.

On view was a working model of glass and lucite of the Dorrco D-1 System of Water Treatment, which involves a more efficient application of deionization. City water was fed to the model and the removal of metallic salts was graphically shown by means of color change and a conductivity meter. The FluoSolid System, a new method of heat-treating solids, was also shown by a working model of glass.

The Dorrco Vacuator and the Dorrco Hydrosizer, two new units, were featured by illuminated transparencies.

The Duriron Co.

The exhibit of The Duriron Company featured three new circulating steam jets, a new line of 150# and 300# steel and stainless steel plug valves, and the company's line of pumps, valves and other equipment for corrosive service.

Representatives in attendance included the following: A. J. Walters, R. H. Stalbaum, S. L. Lopata, W. D. Stanley, W. A. Watkins, D. Augsburger, G. R. Oster, D. E. Jack, R. M. Shields, R. A. Dittbrenner, N. E. Philpot, C. F. Stanton, E. D. Brauns, G. A. Baker, and R. O. Ayres.

Eastern Engineering Co.

The exhibit of the Eastern Engineering Company displayed a general line of mixing equipment for solids and liquids. These included industrial mixers, midget pumps and other laboratory equipment.

Glyco Products Co.

The exhibit of the Glyco Products Company included a line of chemicals, many of which have wide applications in the paper industry. Among them were adhesives for lacquer coatings, paper to aluminum, greaseproof coatings for paper board, preservatives for paper compounds, fire retardant, flame proofing, glazing, sizing waxes and paper weighting materials.

Graver Tank & Mfg. Co.

The exhibit of the Graver Tank and Manufacturing Company featured literature of the company's Hot Process Water Softener for pulp mills, chemical feeders, clarifiers for cooking liquors and waste water, thickeners and other equipment for the industry.

Grinnell Co.

The exhibition of the Grinnell Co. featured the new Pre-Engineered Spring Hangers and Grinnell airplane fittings. Also on display was a selection of the company's large line of adjustable pipe hangers, fabricated piping of all types, cast iron and malleable iron fittings and Grinnell Sprinkler Heads.

Hercules Powder Co.

The exhibit of the Hercules Powder Company included a colored map, in low relief, of "Hercules Land," showing different chemical products of the company and sections of the chemical world each comes from. In synchronization were turntables in four windows. Each turntable was divided into three sections and depicted typical Hercules chemicals from its departments, such as Virginia cellulose, synthetics, naval stores, cellulose products, and paper makers chemicals. A large variety of the company's products were on display and included plastics, protective films and coatings, lacquers, poly-pale resin, solvents and thinners, industrial cleaners and soluble oils.

Representatives of the company present included the following from the paper makers chemical department: Earl H. Cone, Jr., of the Wilmington home office; Walter E. Richards of the New York office, and Don Martin of the Albany, N. Y., office.

International Nickel Co.

The exhibit of the International Nickel Company featured on file mill data of corrosion resisting materials of all types, a special feature service which the company is now extending to industry. This is a special technical feature, including not only the company's products but all products and materials possessing corrosion resisting merits for industrial applications.

Representatives of the company present included: E. A. Turner, T. E. Lagerstrom, W. Carey, F. L. LaQue, C. J. Bianowicz, C. J. Schrafer, and E. L. Fowler.

Jeffrey Mfg. Co.

The exhibit of The Jeffrey Manufacturing Company did not include any equipment this year. On display was a small scale model of the Jeffrey-Traylor gravimetric feeder, in continuous operation.

Representatives of the company in attendance included: H. J. Flint, sales manager; Paul Lawall, manager of the New York office, and William H. Newton, A. T. Cecile, Jerry Smith, E. F. Fador and L. W. Stevens.

Johns-Manville

The exhibit of Johns-Manville featured Celite Filter Aids, which provide maximum flow rate with required clarity on every filtration service of chemicals. A central display at the booth directed attention to the 50th anniversary, which occurs in 1943, of the first shipment of diatomaceous silica from Lompac, Cal., and the founding of the Celite industry.

Leeds & Northrup Co.

The exhibit of the Leeds & Northrup Co. featured electric control equipment for SO_2 and pH and other standard equipment for concentration, gas analysis, conductivity, liquid analysis and temperature.

Nash Engineering Co.

The display of the Nash Engineering Company featured Types K, L and H compressors, having one moving part, no valves or pistons, no internal lubrication and designed to deliver clean air, free from dust, heat and oil. Also on display were the Nash Vacuum Pumps, Types K, L and H, having one moving element, cast in one piece, and rotating without metallic contact.

Representatives present included C. Vicario, and C. L. Clark.

The Neville Co.

The exhibit of The Neville Co. featured LX 483 Nevillac Resin, for waterproofing and greaseproofing ordnance wrap. Also included in the display were solvents used with zein and alcohol for wrap coating.

Representatives of the company in attendance included L. V. Dauler, L. M. Geiger, J. G. Hatman and J. W. Westhead.

Oliver United Filters, Inc.

The exhibit of Oliver United Filters, Inc., featured literature of the Oliver Save-all, Ring Valve Filter, Continuous Vacuum Filter, and the Oliver-Young Pulp Washer. This special type of equipment is provided with a valve in each of the drum compartments, giving an exceptionally high capacity and washing efficiency and offering no restrictions to the flow of filtrate.

Representatives present included W. Riker, A. C. Barnebl, A. B. Saenger and J. F. Mitchell-Roberts.

Photovolt Corp.

The display of the Photovolt Corporation included the concern's Photoelectric Reflection Meter for measuring the brightness, opacity, gloss and color of paper and paper products. It permits four different kinds of measurements, is simple in operation, rugged in design and is designed for operation on 105-125, 50-60 cycle AC.

In attendance were S. E. Krewer and Dr. F. Loewenberg.

Milton Roy

The exhibit of Milton Roy included chemical pumps and proportioners. Included was the Tri-Plex unit which permits higher volumes and pressures than formerly obtained, which cuts down fluctuations in discharge, permitting a more straight-line flow. Another Milton unit was the adjustable While-Running equipment, for the adjustment of stroke while in operation and avoidance of shut down of the pump. Also featured was the Milton Roy Step-Valve pump which is now available with electronic volume control, which may be manually or automatically operated for the accurate speed control for DC pump motors from AC lines.

Wallace & Tierman Products, Inc.

The exhibit of Wallace & Tierman Products, Inc., featured seven of many demonstrations of chlorination efficiency, of which several were of particular interest to the paper industry. These were (1) How a power plant saves fuel, labor and outage of generating equipment by eliminating slime in condensers. (2) How paper mills eliminate production losses by controlling water-borne micro-organisms, and (3) How chemical plants improve well capacity and eliminate yield losses and bacterial corrosion.

New items on display included a demonstration model of a typical control unit and an operating model of a Reagent Solution Feeder. A prominent feature of the exhibit was the demonstration of the importance of chlorination now and after the war. In addition, chemical control equipment and industrial water treatment items were a part of the exhibit.

Yale & Towne Mfg. Co.

The exhibit of the Yale & Towne Manufacturing Company consisted mainly of application photographs of materials handling machinery. This included chain hoists, electric hoists, hand lift trucks, electric industrial trucks and allied equipment.

The company's line of smaller hoists were on display and included the Midget King electric hoist, Spur Gear hoist, Pul-Lift and Screw Gear hoists.

Representatives of the company in attendance included S. W. Gibb, general sales manager; M. G. Peck, manager, electric industrial truck section; W. G. Tipton, manager of hand lift truck section, and C. P. Hedner, manager of hoisting equipment section.

Waste Paper Drive Continues

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 6, 1943.—A city-wide campaign to ease the shortage of war-vital paper will be launched Wednesday of this week with the collection of waste paper by the Salvage Committee of the Office of Civilian Defense. More than 12,000 Boy Scouts will cooperate. The committee, whose chairman is Warner F. Haldeman, issued a statement showing the diverse purposes paper is used for in war time.

The services of outstanding organizations have been enlisted, and will provide 50 trucks to call at homes for paper between next Wednesday and December 18. A folder issued by the committee asks donors to fold newspapers flat and tie them in bundles about 12 inches high. Magazines should be tied in bundles about 18 inches high. Corrugated and cardboard boxes and cartions should be flattened and tied in bundles about 12 inches high. Wastebasket paper should be packed down in a bag or box.

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 117 December 9, 1943 No. 24

COMING EVENTS IN PAPER INDUSTRY

American Paper and Pulp Association, Sixty-seventh Annual Convention and meeting, Waldorf-Astoria Hotel, New York, February 14-18.

Technical Association of the Pulp and Paper Industry, Convention, Commodore Hotel, New York, February 14-17.

National Paper Trade Association of the United States, Convention, Waldorf-Astoria Hotel, New York, February 14-17.

The New York Association Of Dealers In Paper Mills' Supplies, Annual Banquet, Commodore Hotel, New York, Tuesday, February 15.

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

ANOTHER BAD TAX BILL

Repetition of inadequacy and an ineffective approach to the often reported factor of "ability to pay", is once again present in the new revenue bill. It is a bad tax bill and certainly no improvement upon its equally bad predecessor. One of the worst features of the 1943 Revenue Act was quite widely considered as the Victory Tax which imposed a 5% levy. The inequitable nature was the imposition of a tax on gross income rather than on net income, on ever person with an income above $12 a week. This has been dropped from the new bill approved by the House. Although the Treasury asked for a $10,500,000,000 revenue bill and still is asking for it, Chairman Doughton of the Ways and Means Committee said the American people were bearing the heaviest tax load in the world, referred to the Treasury estimate of the so-called inflationary gap as a "statistical abstraction", and declared that too heavy a burden was "as great a danger to the nation's economy as is too large a public debt."

The House bill, adopted by a standing vote of 260 to 27, increases taxes by $2,139,300,000 and includes $154,000,000 in income taxes, $616,000,000 in corporation levies, $168,000,000 more in postal rates and an extended list of excise taxes. An increase from 6 to 10% on individual incomes replaces the 5% Victory Tax. The inflationary danger of incomes far in excess of available goods to absorb it, was stated by the Treasury in these words: "Today four-fifths of all the income of the nation is going to people earning less than 5,000 a year." The new taxation plan, however, fails to meet this problem and any changes are now up to the Senate. From current indications, another inadequate revenue act seems likely for 1944.

Opinion of business men on the nex tax bill is broadly summarized in a release issued by the Guaranty Trust Company of New York, in part as follows: (1) "Further substantial increases in income tax rates on corporations and on individuals in the middle and higher brackets would be futile and dangerous. (2) Additional tax revenue, if needed, should be obtained by broadening the tax base, either through lower personal exemptions, higher excise taxes, or, best of all, a general sales tax. (3) The most objectionable features of the present law are the capital stock tax and the declared-value excess profits tax. (4) It is highly important that the tax structure be such as to permit business concerns to build up adequate post-war reserves. (5) The tax system is greatly in need of simplification and, as far as possible, stabilization. (6) The present fiscal problem can be solved largely if not wholly by economy in Government expenditure. (7) Double taxation of corporation earnings in the form of profits and dividends should be abolished. (8) The provisions of the law dealing with capital gains and losses, excess profits tax credits and the spreading of losses should be liberalized. (9) Estate, gift and social security taxes should not be raised at present, and the social security tax should be used exclusively for social security purposes. (10) High tax rates are accepted as necessary, and objections are raised only against those provisions of the law that are considered inequitable in their operation. . . . On the following points opinion is divided, or there appears to be no pronounced sentiment among business men: Further increase in excess profits tax; the importance of renegotiation of war contracts, and the compulsory savings plan."

In testifying before the Senate Finance Committee last week, Enders M. Vorhees, chairman of the finance committee of the United States Steel Corporation, called attention of the Finance Committee to the "growing tendency to confuse costs and income and to tax as income what are really costs"—and "to the imminent danger that the upsurge of certain Government-controlled costs pressing against Government-controlled selling prices will defeat the tax system. "In either or both events," he added, "the result is a levy on the tools of production and exchange—call it a capital levy if you like—which will render not only the United States Steel but all other business enterprises helpless to produce more and better goods in the years to come." Mr. Vorhees went on to say that he appeared "to suggest that it is to the advantage of all of us to shape national tax and financial policies so that all of us will be able to do our part in rebuilding the nation after the war."

In commenting on the effect of fixed prices, Mr. Vorhees said in part: "Our record shows that, with fixed prices and rising wage costs, Government reve-

nues from corporate taxes decline and must be recouped by additional taxes on the public generally or by liquidating the return to owners. Fixed selling prices mean that costs push one another around inside enterprise, with a resulting squeeze first upon the owners, then upon Government and, finally, upon the workers and the whole public. . . . There cannot be an economy in which ends do not meet, and in our fluctuating economy they can only meet through that which is carried forward for future needs and through the willingness of owners to provide tools in the hope of being paid for their use."*

Smith Co. May Lower Lake 12½ Feet

[FROM OUR REGULAR CORRESPONDENT]

LEE, Mass., December 4, 1943.—A decision rendered by the State Public Works Commission at Boston recently gives Smith Paper, Inc., of Lee the right to lower the level of Laurel Lake in Lenox and Lee 12½ feet below the spillway of the present dam but denies the right to lower it below its natural level. The commission which has supervision over great ponds of the commonwealth, has had the case under consideration since hearings were completed last March.

On July 3, 1941 the commission received a complaint from owners of propertly abutting Laurel Lake that the paper company had installed a pump and was drawing down the water of the lake, then extremely low. On basis of this protest, the company was ordered to show, at public hearings before the commission, by what authority it was lowering the lake's level. At a series of hearings started on Aug. 27, 1941, and ending on March 11, this year, the paper company asserted that it was the owner of Laurel Lake, and as such, could lower the water below the pond's natural level.

Counsel for the abutting property holders, on the other hand, maintained that the company was without authority to bring the level below the spillway on the dam.

"It is the opinion of the commission," the decision states, "that the owners of this structure (the Smith Paper Company dam) had a right to raise the water to the level of the spillway and a right to draw it down to the natural level of the pond."

Workers Return at Bird Plant

[FROM OUR REGULAR CORRESPONDENT]

EAST WALPOLE, Mass., December 6, 1943.—Eight hundred workers of Bird & Son, Inc., returned to work early Friday afternoon ending a strike which started Wednesday morning and cost an estimated loss of 5500 production hours a day. By midnight it was expected that production would be back to normal. The strike was called because of a dispute involving union domination. Representatives of the two unions involved, the Eastern Building and Roofing Employes Union and CIO Local No. 1330, Carton Container and Paper Workers, conferred with a member of the U. S. Department of Labor Conciliation Division today, and the dispute was settled.

The unions agreed to a consent ballot, to be conducted Wednesday to ascertain which union would be chosen as the sole bargaining agent for the paper mill and box factory workers.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1943		Corresponding Weeks—1942	
October 23	88.5	October 24	91.6
October 30	89.5	October 31	92.9
November 6	90.6	November 7	88.5
November 13	89.4	November 14	89.7
November 20	91.0	November 21	86.9
November 27	89.8	November 28	82.3

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1942	104.5	103.9	102.9	100.4	95.3	87.4	75.8
1943	87.2	88.9	89.5	88.7	91.4	86.4	84.4

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1942	80.8	82.8	90.6	86.9	80.1	90.4
1943	91.1	88.3	90.2	90.6	....	....

COMPARATIVE YEARLY SUMMARIES

	1936	1937	1938	1939	1940	1941	1942	1943
Year to Date..	79.8	82.6	71.3	82.6	86.0	97.0	91.5	88.8
Year Average..	80.4	79.8	71.5	83.4	85.6	97.4	90.4	....

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	..	..

Week ending Oct. 23, 1943—94 Week ending Nov. 13, 1943—95
Week ending Oct. 30, 1943—94 Week ending Nov. 20, 1943—94
Week ending Nov. 6, 1943—93 Week ending Nov. 27, 1943—91

† Per cents of operation based on "Inch-Hours" reported in the National Paperboard Assn.

N.P.T.A. Convention Assured

A. H. Chamberlain, executive secretary of the Washington Paper Trade Association announces that "After considerable delay due to uncertainty regarding arrangements, we can now announce that our 41st Annual Convention will be held in New York City, February 14-17, with headquarters at the Waldorf-Astoria as usual.

"Hotel operating conditions here are certain to continue exceedingly difficult. We are assured that the Management will make every effort to accommodate our members but those desiring to make reservations at the Waldorf should do so immediately and should try to help the situation by sharing double rooms whenever possible. The overflow to neighboring hotels will be larger than ever before and we remind you of several that are conveniently located—the Barclay, the Belmont Plaza, the Lexington, the Shelton and the New Weston. The Commodore, the Roosevelt and the Biltmore are not too far away.

"We regret that it has been impossible to make arrangements for our usual Exhibit either at the Waldorf or at any other hotel in the mid-town area. Operating conditions above referred to, as well as service problems and help shortages, make it impossible to provide the facilities required by our manufacturing friends. We understand, however, that many of them will have rooms at the Waldorf and the Management will carry out our suggestion to centralize them as far as possible."

J. C. Clark Goes with Kupfer Bros.

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Auxiliary Firemen	*Nurse's Aides*	*Salvage Collectors*
Auxiliary Policemen	*Plane Spotters*	*Victory Gardeners*
		War Bond Sellers

The place for advice and enrollment is your local Civilian Defense Volunteer Office. Visit it and arrange to serve in the work which fits you best.

PRODUCT Chemical Formula Molecular Weight	DESCRIPTION	Essential Wartime Service to the Pulp and Paper Industry	CONTAINER DATA
Bleaching Powder $CaO \cdot 2CaOCl_2 \cdot 3H_2O$ =364.1	White powder with chlorine odor	Pulp and paper bleaching Manufacture of cigarette paper Deodorizing pulp Slime control Water treatment	Drums containing 100, 300 and 800 lbs.
Caustic Soda NaOH=40.00	White deliquescent solid	Digesting wood pulp	Drums containing 100, 220, 400, 700 lbs. and tank cars
Chlorine, Liquid Cl_2=70.90	Orange liquid or greenish yellow gas	Pulp and paper bleaching Deodorizing pulp Slime control Water treatment	Cylinders containing 100 and 150 lbs. Drums containing 2000 lbs. and tank cars containing 16 and 30 tons
Muriatic Acid HCl=36.5	Colorless to light yellow liquid Sp Gr 1.1600 or 20° Be.	Cleaning wire screens of pulp washers, Fourdrinier wires, and wires on paper machines	13 gal. carboys containing 125 lbs. and tank cars
Sodium Sulfide Na_2S=78.1	Light yellow colored solid	Cooking flax in the manufacture of cigarette papers	Drums containing 90 and 350 lbs.
Chlorinated Paraffin (Formula depends on chlorine content)	Colorless to amber colored viscous liquid	Plasticizer in paper impregnating compositions	55 gal. drums containing 525 lbs. and tank cars

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Paper Products As A Factor In Chemical Warfare Service Packaging*

By Lt. Theodore P. Steinmetz[1]

Abstract

The Chemical Warfare Service has developed specifications which apply to its particular requirements. The specific use and problems involved are discussed for certain important paper products such as waterproof, greaseproof, and water vaporproof papers.

Except for a few special items Chemical Warfare Service packing and packaging problems do not differ from those of the other services though they involve more than 1800 items, including components which go into end items. Weights vary from an ounce in the case of ignition cartridges up to 21 tons for an impregnating plant.

Products of the paper and pulp industry backed by the cooperation of individual manufacturers, have been invaluable to this service. Consequently the present problem is not with paper products, but outside shipping containers. In order to survive rough handling incident to overseas shipment, the outside container must be of substantial wood construction because experience indicates that there is no satisfactory substitute readily available. Unfortunately, because of the critical lumber shortage, a large number of boxes and crates are being fabricated from green wood and fall apart before reaching their destination. In spite of this problem, it should be borne in mind in the following discussion of the use of paper products by the Chemical Warfare Service that final shipping container is always a wooden box or crate.

Paper and related products are used by this Service mainly for interior packing and individual protection of munitions and supplies. This interior packing involves the following paper products:

1. Waterproof paper liners and bags for our wooden shipping containers.
2. Greaseproof paper for parts and surfaces treated with rust inhibiting oils.
3. Moisture and vaporproof bags.
4. Various types of asphalt impregnated laminated cylindrical containers.
5. Corrugated and solid paperboard for cartons which are then overpacked in wooden containers.
6. Cushioning materials ranging from corrugated paperboard to cellulose wadding.
7. Waste paper in the form of shredded or wadded newsprint.
8. Asphalt impregnated roofing paper for fully sheathed crates.

Specifications

At Edgewood Arsenal there is a packaging section of the Engineering Division of the Technical Command which is charged with full responsibility for all C. W. S. packaging and packing design. Packing is engineered to afford complete protection to the item being packed. The first consideration is "will the item reach a theatre of operations undamaged." The answer is found by thorough rough handling tests, by varied procedures, of a package to the point of destruction and it is through such testing, certain minimum requirements have been ascertained which a package must meet before it is standardized and placed in the specifications.

Unfortunately, when a new package was developed, it was frequently months before it was placed in service and the new specified packing was applicable only to new contracts consummated under the new specification. To overcome this lag between newly developed packing and its ultimate use, a policy has recently been initiated to make all packing changes mandatory and applicable to existing contracts, and to stocks at depots and arsenals. The Procurement Districts are required to renegotiate existing contracts to provide for the new packing.

All C. W. S. packing of overseas items complies with the requirements of U. S. Army Specification 100-14. However, it has been found that simply inserting a clause in the specifications to require such compliance, rarely results in proper packing. Therefore, in most instances packing diagrams are incorporated together with carton and box designs in the drawings of an item. Specifications then require packing in conformance with those drawings. This method eliminates misinterpretation of 100-14 by contractors and inspectors. It also assures uniform packing where several contractors are producing the same article, and enables the Service to exceed the minimum requirements of 100-14 when this is necessary.

Use of Paper Products

Specific applications of the paper products previously mentioned and problems we have encountered and are still encountering are as follows:

* Presented at the Army and Navy Requirements Conference of the Technical Association of the Pulp and Paper Industry, Palmer House, Chicago, Ill., Sept. 21-24, 1943.
[1] Technical Command, Edgewood Arsenal, Md.

A. WATERPROOF PAPER. The most important use of this paper is for box liners. A 30-30-30 asphalt laminated sheet meeting the requirements of Federal Specification UU-P-271 is used. It is usually procured fabricated into a bag of the correct size for the particular box in which it will be used. These liners have been found to give satisfactory protection to an item during outdoor exposure and represent the first barrier against the entrance of moisture. However, a liner that will give complete protection if the box is submerged in water for 24 hours has not been secured. As paper, the liner will meet specification tests for 24-hour water resistance. Such tests however, do not correspond to actual submergence of a box of munitions lined with the paper and properly sealed. These liners do, however, withstand short periods of immersion such as may be encountered during amphibious operations, in addition to protection against the elements during outdoor storage. As mentioned, they are a first barrier. Whenever feasible there are additional barriers in this respect. The lined box usually contains several unit packages of an item; for example, ten paperboard cartons each containing one gas mask. These paperboard cartons are moisture resistant, but as with the paper, will not stand a long period of immersion. They act as a second barrier. For a third barrier, a water vaporproof bag around the gas mask carrier is used. That type of package has survived more than 24 hours' submergence in salt water. Although the cartons were saturated, water did not reach the masks. Recently it has been found that these box liners were necessary to protect interior paperboard packing against moisture resulting from the use of green lumber in box construction.

The use of liners introduces the problem of protecting the liner against the contents that the liner is supposed to protect. These liners are easily worn through if the contents of the box are harder than the liner. For example, smoke pots which are large cans, quickly abrade through a liner during shipment and this difficulty is overcome by using double faced corrugated paperboard on all interior faces of the box. Special liner protection is not necessary when an item is packed in paperboard interior packing box, as is the case with service gas masks.

When the interior arrangements of bracing for an irregular shaped item is such that it is not practical to use a waterproof liner, the technique consists of wrapping and sealing those parts of an item that can be damaged by moisture. For example, a new packing for the 4.2 inch chemical mortar is being introduced. The barrel with accessories fit into various compartments and irregularly shaped spacers within the wood box. The exterior of the barrel is adequately protected against corrosion by paint. The only point of entrance is through the muzzle. After the rifling has been treated with a rust inhibitor lubricant, the muzzle is wrapped in greaseproof paper and covered with a water resistant muzzle cover. Over that there is fitted a waterproof paper bag which is sealed to the barrel with three wraps of waterproof adhesive tape. The various accessories and tool rolls are each treated against corrosion and either wrapped in the waterproof paper, sealed with marine glue, or placed in small waterproof bags. The various components are then placed in their proper compartments within the box.

It is realized that it is possible to increase resistance to entrance of moisture by using a better grade of waterproof paper as a first barrier, however, the better grades are difficult to obtain. If they are specified as part of the packing, very often a contractor is granted a waiver permitting him to use a grade C or D paper from Federal Specification UU-P-271.

B. GREASEPROOF PAPER. It is a fallacy to specify a waterproof box liner and then believe the job is done. While such a liner is reasonably resistant to the entrance of water for a limited period, it is not vaporproof. Therefore the humidity within a package will correspond to conditions outside of the container. If this humidity exceeds 20%, corrosion of unpainted ferrous surfaces usually results. Consequently, such surfaces must be thoroughly cleaned and then protected with oils and greases containing rust inhibitor agents. To keep the oil or grease on the part treated, greaseproof paper is used. If the part is small, it is then further wrapped in waterproof paper or a bag, giving a second water barrier. For example the tool kits in the Maintenance Company sets and Field Laboratories are treated in this manner and each tool wrapped in greaseproof paper.

C. WATER VAPORPROOF BAGS. These are used by the Chemical Warfare Services inhibiting corrosion as they are necessary in connection with silica gel for packaging items which cannot be treated safely with rust inhibitors. The Air Corps and Signal Corps use this type of paper. These bags are used as a moisture and waterproof barrier for service gas masks, for individual booklets of liquid vesicant detector paper, and for gas mask canisters with special fillings which are extremely moisture absorbent. Such items are small and if properly sealed, silica gel protection is not required. There is no corrosion problem with these items. The bags act as adequate vapor barriers and in addition are another water barrier.

D. ASPHALT LAMINATED CYLINDRICAL CONTAINERS. These are excellent water barriers comparable to hermetically sealed cans. Some of these containers are also made vaporproof for special canisters by using 30-pound kraft for the final layer and dipping the sealed container in either micronized or paraffin wax.

A typical individual container is that used for the 4.2-inch chemical mortar shell. It comprises an inner and outer convolutely wound tube. The inner tube is fabricated with a minimum of three layers of paper starting with a layer of 0.01-inch waterproof wood manila paper on the inside followed by a layer of 0.025-inch asphalt impregnated kraft. The outside layer is 0.031-inch asphalt filled waterproof chipboard. The outer tube consists of four layers as follows:

1—Inner layer of 0.031 inch asphalt filled waterproof chipboard
2—Layers of 0.007 inch waterproof duplex kraft wrapping paper
1—Outside layer of 0.004 inch asphalt impregnated kraft cemented to the previous layer with asphalt

If the assembled container is to be wax dipped, the final layer consists of 40-pound kraft. Container ends are 30-gage sheet steel electrolytically zinc coated and flanged for rolled crimping together with a sheet steel retainer. These are roll crimped to container ends.

A similar type of container, procured under U. S. Army Specification 50-61-3B and in conformance with Chemical Warfare Service drawings, is used for grenades.

E. PAPERBOARD CONTAINERS. Double-faced corrugated paperboard containers are extensively used for interior packing. The number of individual items per container is usually determined by the basis of issue. These containers require protection against moisture and therefore may be indidvidually wrapped and sealed in waterproof paper before packing in a

nailed wooden box, or the box liner is relied upon for this protection.

F. CUSHIONING MATERIALS. Corrugated paperboard is used for interlocking separators and box liners to secure tight packing and protection of waterproof liners. Fragile articles are wrapped in extension wrappers and may then be further separated from adjacent items with cellulose wadding.

G. WASTE PAPER. Shredded newsprint has been found valuable as a shock absorbent for interior packing. An interesting instance is a new packing for the Chemical Warfare Service instructional gas identification set. Formerly one 4-ounce bottle was packed in sawdust in a quart can and then eight cans put in a wooden box. To reduce volume, a pack was made involving three 4-ounce bottles tightly packed in sawdust in a gallon size can with two cans in a wood box. This appeared to be an excellent pack. However, tests run on the vibrating machine which simulates freight car movement and is a test for interior packing, resulted in the bottles floating on top of the sawdust and breaking. After numerous changes, the pack finally standardized required that each bottle be wrapped in cellulose wadding, lapping it over the top and bottom. Three bottles are then firmly packed in shredded news in a gallon size can and two cans packed in a wooden box. Not only does this pack survive interior packing tests, but when rough handling the exterior wood box until destroyed, the bottles are not broken. An example of packing involving all types of paper products is the C. W. S. new Field Laboratory, M2, now being supplied to the laboratory companies in the field. The previous laboratory had been supplied in 185 assorted size cases and foot lockers equipped with trays and compartments for each item. This was a prewar development and could not stand shipment without considerable breakage. With the experience gained from the older model, the Chemical Warfare Service packing section developed what is believed to be a type of pack that is resistant to extreme rough handling and outdoor exposure. To eliminate a large number of assorted size containers, a cleated plywood shipping box having an interior volume of 22 cubic feet was designed and standardized. Thirty of these containers and four crates comprise the entire laboratory. An unusual feature is that after a laboratory is unpacked, the shipping box is used as a laboratory table and cabinet. Each box is 4 feet long, so when unpacked, each laboratory has 120 linear feet of table space 2 feet in width and a similar amount of shelf space. For exterior packing two sizes of corrugated slotted type paperboard boxes were procured: a small size for small glass items and reagents, and a large one for other equipment and reagents. Each carton is packed with several items, each of which is individually wrapped in an extension wrapper. Excelsior is then used liberally between items as a shock absorbent. When the contents are subject to moisture damage, these cartons are wrapped with waterproof paper. Items subject to corrosion are treated with rust inhibitor oil and wrapped in greaseproof paper before being packed in cartons. Each carton is numbered to key it to its plywood shipping box and a master packing list.

The biggest problem was an analytical balance with glass sides. For this there was developed a floating pack comprising two shock absorbent barriers on all sides. This set-up was placed in a corrugated carton wrapped in waterproof paper and then floated in a nailed wooden box which was packed with other items in one of the laboratory shipping boxes. The balance suffered no damage or loss in sensitivity when this packing was subjected to our rough handling procedure.

Possible Stream Pollutional Aspects of Mill Antiseptics*

By Willis M. Van Horn[1]

Abstract

The use of slime control agents in pulp and paper mills may complicate the problem of stream pollution especially from the standpoint of the toxic effects of mill effluents to fish. The critical concentrations to fish of Lignasan, Merfenel, Nalco 21, Nalco 23, and Santobrite have been established. Average survival times of fish in various concentrations of these compounds have also been determined. It is apparent that, from the standpoint of stream pollution, the use of these compounds would be conditioned primarily by (1) their concentration necessary for effective use in the mill, (2) the extent to which the slime-controlling agent is adsorbed by the pulp fibers, (3) the white water and other water loss, and (4) the rate of dilution of the mill effluent in the stream.

A method for the study of the toxicity of mill effluents is described.

Slime-producing organisms are common in the water supplies and are often afforded optimum conditions for growth under circumstances of pulp and paper manufacture. A number of commercial compounds have been recommended for slime control, and the effectiveness of some of these has been investigated at The Institute of Paper Chemistry *(1)*.

Because the use of these reagents is designed to control the growth of living organisms and because they are introduced into the water systems of pulp and paper mills, it follows that some of the toxic material might find its way into the sewer and eventually into the stream. This presents the problem of whether such reagents in the mill effluent will set up a stream purification problem, affecting fish and other aquatic forms in the waters into which the mill wastes are emptied. Under ordinary circumstances most mill effluents are quite rapidly diluted after reaching the river, and it seems probable that this dilution might dissipate the toxic agent quickly enough to prevent any ill effects. On the other hand, there are cases in which the rate of dilution of the ef-

* Presented at the Army and Navy Requirements Conference of the Technical Association of the Pulp and Paper Industry, Palmer House, Chicago, Ill., Sept. 21-24, 1943.

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fluent in the river is slow. In such instances, it would be of value to know to what extent the slime-control reagents could exist in a river and still remain harmless.

The Monsanto Chemical Company, manufacturers of Santobrite, early recognized the possibility of a pollutional problem arising from the use of Santobrite in controlling slime in pulp and paper mills, and in 1939 carried out an investigation at the University of Illinois designed to develop fundamental information on the effect of that product on fish life. The results have been reported by Goodnight *(2)*. Shortly thereafter (1940), the Monsanto Chemical Company made arrangements with the Institute for an extension of this work to include the effect of mixtures of Santobrite and pulp and paper mill effluents on fish. The present results on Santobrite have been taken from the work done for Monsanto at the Institute and are published with the permission of that company.

At the conclusion of the work on Santobrite a project was established by the Institute for a study of various slime-controlling agents in use in pulp and paper mills on their effect on aquatic life, a project closely related to the study in progress on the relative effectiveness of these agents in controlling slime *(1)*. This paper presents the first data gathered under this project. Further reports will follow as additional reagents are investigated.

Much has been written about the sensitivity of various species of fish to toxic conditions existing in their natural habitat. Some fish (e.g., the carp) are quite resistant to environmental changes, whereas others (especially some of those in the minnow family) are extremely sensitive. In this work, for the main part, the most sensitive of the local minnow fauna were used. These included the following species: the steel-colored or spot-fin shiner *(Notropis spilopterus* (Cope)), the blunt-nosed minnow *(Hyborhynchus notatus* (Rafinesque)), the lake emerald shiner *(Notropis atherinoides* (Rafinesque)), and the rosy-faced shiner *(Notropis rubellus* (Agassiz)).

The use of these minnows during the experiments depended on their availability at the time needed; it was not possible, therefore, to test any one reagent with all the species. The minnows were collected from a local stream by means of a glass minnow trap; such traps reduce to a minimum the incidence of injury to the fish. The fish were immediately brought to the laboratory and stored for a period of about a week to allow them to become adjusted to laboratory conditions. Only healthy fish were used in these experiments.

In some experiments, frog tadpoles *(Rana pipiens)*, goldfish *(Carassius auratus* (Linneaus)), and other fresh water forms were used as test animals. With the exception of the goldfish, the data for these forms resemble so closely the data for the minnows that they are not included in this paper. The data on the goldfish are, as yet, incomplete and will be reported at a later date.

In the progress of this work thus far, five reagents recommended by their manufacturers for the control of slime-producing organisms have been tested.

The test solutions in which the fish were placed were made up as follows: A 0.1% stock solution of the reagent to be tested was prepared by dissolving 1 gram of the material in 1 liter of water. One ml. of the stock solution in 1 liter of the test water was considered to be a 1 p.p.m. solution. Test solutions of other concentrations were made up accordingly. The water used in preparing the dilutions into which the fish were placed was tap water, which had been passed through the ordinary process of water purification and which originally came from the lower Fox River in the vicinity of Appleton, Wis.

The method of testing used in this work was a modification of that of Powers *(3)*. Two liters of test solution were placed in open-top battery jars which, in turn, were placed in a water bath, the temperature of which was maintained between 18° and 20° C. From three to five fish were then placed in each jar. The following phenomena were used as a basis for evaluating the effect of the various chemical agents:

1. The survival time for each fish was observed. This was the time which elapsed between the introduction of the fish into the solution and the occurrence of death. The criteria of death used were: *(a)* the time when the fish became insensitive to various types of applied external stimuli and *(b)* the time when all gill, eye, and fin movements ceased.

2. The dissolved oxygen content of the water at the time of the death of the last fish was noted. This was done to make certain that death was not caused by a lack of oxygen. The results have not been included for the few cases where the dissolved oxygen content of the test solution fell below 2 p.p.m., although control animals in pure tap water were often observed to survive oxygen concentrations as low as 1 p.p.m. The Winkler method was used for the determination of dissolved oxygen *(4)*.

3. The pH of the water was measured at the time of the death of the last fish. In all cases, the pH of the test solution was well within those limits favorable to fish life.

4. The total alkalinity of the dilution water was noted. It is known, in some cases at least, that substances seem to be more toxic to fish in waters of a low total alkalinity than in those of high alkalinity. For the most part, the dilution water in the experiments had a total alkalinity of about 120 p.p.m.

5. In so far as possible, the immediate physiological cause of death was determined by post-mortem examination.

Although the present report is concerned with the use of this method in determining the toxicity of slime-control agents to fish, it is apparent that the method is also of value in determining the toxic properties, if any, of any type of pulp or paper mill effluent.

In 1942 Goodnight *(2)* reported on the toxicity of Santobrite to fish; this compound has also been investigated at the Institute, with results confirming those of Goodnight. In addition, the toxic properties of Merfenel, Nalco 23, Nalco 21, and Lignasan have been examined. Some of the compounds (notably Santobrite) have as their active ingredient a chlorinated phenol; others (such as Lignasan and Merfenel) contain organic mercury compounds. It should be stated that the various products do not all contain 100% of active agent—a number are diluted to a greater or less degree with salts or other inactive agents. The values reported below should not be accepted as those for the active component but rather for the commercial product. The actual amount of the reagent used in the mill is based both upon the concentration of active chemical in the product and the activity of the particular active agent in controlling slime.

Table I gives the critical concentrations of these

compounds for the species of fish which were tested. That is, any concentration which is above the level indicated will prove lethal sooner or later to that species of fish, under the conditions of the experiment.

TABLE I.—CRITICAL CONCENTRATIONS OF SLIME-CONTROL REAGENTS IN P.P.M.

Reagent	Critical Concentrations, p.p.m. Steel-Colored Minnow	Blunt-Nosed Minnow	Lake Emerald Shiner	Common Shiner
Santobrite	0.4	0.3	0.2	...
Merfenel	0.02	...	0.02	0.06
Lignasan	1.0	1.0	0.8	...
Nalco 23	1.4	1.4	1.4	...
Nalco 21	...	...	0.4	0.4

As can be observed from the above data, Merfenel is the most toxic to fish of any of the compounds thus far tested and Nalco 23 the least so. The blank spaces in the table indicate that that particular species of fish was not available when the tests were made.

Tables II to VI show the average survival times of fish tested in various concentrations of Santobrite, Merfenel, Lignasan, Nalco 23 and Nalco 21, respectively.

TABLE II.—AVERAGE SURVIVAL TIME OF FISH TESTED IN VARIOUS CONCENTRATIONS OF SANTOBRITE

Concentration p.p.m.	Steel-Colored Shiner min.	Blunt-Nosed Minnow min.	Lake Emerald Shiner min.
5.0	18	21	16
1.0	74	80	87
0.8	91	...	...
0.6	133	128	166
0.4	234	248	418
0.2	Lived	Lived	Lived

TABLE III.—AVERAGE SURVIVAL TIME OF FISH TESTED IN VARIOUS CONCENTRATIONS OF MERFENEL

Concentration p.p.m.	Steel-Colored Shiner min.	Rosy-Faced Shiner min.	Frog Tadpoles min.
1.0	51	39	123
0.8	56	35	144
0.4	64	54	304
0.1	141	334	1080
0.08	219	423	1380
0.06	251	592	1380
0.04	320	730	2160
0.02	Lived	1008	Lived
0.01	Lived	Lived	Lived

TABLE IV.—AVERAGE SURVIVAL TIME OF FISH TESTED IN VARIOUS CONCENTRATIONS OF LIGNASAN

Concentration p.p.m.	Steel-Colored Shiner min.	Blunt-Nosed Minnow min.
10.0	49	48
5.0	128	128
4.0	177	155
3.0	277	225
2.0	372	177
1.0	1840	1643
0.8	Lived	Lived

TABLE V.—AVERAGE SURVIVAL TIME OF FISH TESTED IN VARIOUS CONCENTRATIONS OF NALCO 23

Concentration p.p.m.	Steel-Colored Shiner min.	Lake Emerald Shiner min.
5.0	54	117
4.0	73	150
3.0	116	226
2.0	198	377
1.8	283	565
1.6	320	738
1.4	Lived	Lived

TABLE VI.—AVERAGE SURVIVAL TIME OF FISH TESTED IN VARIOUS CONCENTRATIONS OF NALCO 21

Concentration p.p.m.	Lake Emerald Shiner min.	Common Shiner min.
5.0	97	73
4.0	132	99
3.0	189	139
2.0	229	184
1.0	439	370
0.8	564	440
0.6	761	963
0.4	954	1018
0.2	Lived	Lived

In further tests of pulp and paper mill wastes made in the Monsanto study, it has been established that the presence of these wastes in the lower concentration ranges does not enhance the toxicity of a 1 p.p.m. solution of sodium pentachlorophenate towards fish—i.e., the mixture of disinfectant and waste is no more toxic than the disinfectant alone. In concentrations well above those which would appear in the streams, there may be a somewhat increased toxicity. Such threshold concentrations vary with the particular waste; in the case of groundwood pulp white water, it is 5%, with sulphite pulp wash waters 2.5%, whereas with paper mill white waters the concentrations may go as high as 50% without materially increasing the toxicity of the mixture. Below these various concentrations the mixtures of waste and 1 p.p.m. sodium pentachlorophenate show the same behavior toward fish as does a solution of 1 p.p.m. pentachlorophenate in tap water.

No attempt has been made in this report to cover other variables which may control the amount of slime-controlling agent entering the stream. This will form the subject matter of future reports.

The data presented in this report indicate that small concentrations of all these substances may be toxic to fish, although it must be borne in mind that, at the critical levels, the fish often remained in the test solution for many hours. It is doubtful if similar conditions would be duplicated under natural conditions. By the time the toxic substance became diluted in a river to 0.4 p.p.m., it is probable that further dilution would occur at such a rate as to preclude the possibility of harmful effects upon the fish.

It is in the higher concentrations that the chief danger to fish is found. Although the average survival times given are for the occurrence of death, the length of time required to injure the fish beyond recovery is much shorter. Fish placed in a solution of 5 p.p.m. of any of the reagents tested will lose their sense of equilibrium within a few minutes and will show evidence of internal injuries which ultimately are the cause of death.

It appears that, from the standpoint of stream pollution, the use of the various slime-control agents would be conditioned by several factors:

1. The concentration necessary to be effective in mill operation;
2. The extent to which the slime-controlling agent is adsorbed by the pulp fibers and, hence, does not appear *in toto* in the mill effluent;
3. The magnitude of white water and other water loss to the sewer; and
4. The amount and rate of dilution occurring after the mill effluent is emptied into the stream.

Under conditions of normal mill operation, if the mill is located on an average sized stream, it seems unlikely that lethal concentrations of these slime-control agents would exist in the river over a very large area. It is possible, of course, that conditions dangerous to fish might occasionally exist in the immediate vicinity of the mill effluent, but stream dilution should quickly remove this danger. On the other hand, if by accident, the concentration of these agents is raised in the effluent, it is conceivable that for a time fish life might be menaced for a considerable distance from the source of the effluent.

This investigation is being continued at the Institute to determine the toxic qualities of other slime-control reagents.

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Problems in Packaging War Material*

By George A. Garratt[1]

Abstract

The primary objective of any well-conceived packaging program is to provide such protection to the materials to be shipped as to ensure that they will arrive at their ultimate destination in condition to be put to immediate use. For this purpose, various branches of the Army, Navy, lend-lease agencies, and other Government units early in the war called upon the Forest Products Laboratory to assist in the solution of immensely complex packaging problems, such as transportation hazards, size and weight restrictions, and container designs for special uses.

The packaging of war material for shipment overseas presents problems that are quite distinct from those involved in the peacetime movement of manufactured goods. The wartime shipping program is complicated by the accelerated movement of equipment and supplies in unprecedented volume, both within this country and overseas; by the general inexperience of much of the labor involved and the inefficiency of many handling procedures; and by a variety of other factors. Not the least of the complications is the fact that the manufacturer generally has little or no knowledge of the final destination of the material he is to ship, or of the hazards to which the shipments may be subjected while enroute.

The design and construction of suitable shipping containers and the development of adequate packaging procedures to meet the requirements for the overseas movement of war material and supplies are dependent upon proper evaluation of a variety of factors that may affect not only the serviceability of the containers themselves but also the ultimate utility of their contents. To that end, it is not alone sufficient that the exterior container be of adequate strength to withstand the various stresses that may be imposed as the result of repeated handlings, adverse storage conditions, and different methods of transportation. Fully as important are such considerations as suitable blocking, bracing, and cushioning of items within the containers, proper application of preservative treatments to materials subject to corrosion, and other steps that may be necessary to insure the protection of contents against possible hidden damage. For the purposes of this discussion, the factors involved will be considered under three headings: (1) Handling, transportation, and storage hazards; (2) size and weight restrictions of containers; and (3) the nature of the materials to be shipped, and their need for protection against breakage, corrosion, and other forms of damage.

Handling, Transportation, and Storage Hazards

The hazards incident to handling, transportation, and storage are many and varied and may be encountered all along the line, from the point of origin of a shipment to its ultimate destination, be that a storage depot in a hot, arid desert, a base in a steaming, tropical jungle, or a cold, damp Arctic outpost. War material and supplies may be moved by truck, rail, boat, or plane, or even carried on the backs of animals, the shoulders of soldiers and marines, or the heads of native porters. Each of these methods of transportation presents its own peculiar problems and the shift from one type to another may lead to complications, because of the possible conflict in essential requirements of the containers. Thus, because of its inherent light weight a container may be ideally suited for one form of transportation but decidedly inadequate for another in which the emphasis is on strength and minimum cubic displacement.

One of the major considerations in the movement of equipment and supplies overseas is the amount of handling and rehandling involved and the resultant damage which may result. It is reliably reported that containers shipped to certain theaters of operation may receive as many as 100 separate handlings between the manufacturer's plant and their final destination. Handling conditions are especially severe in theaters of operation and in many foreign countries where the movement of equipment and supplies is accomplished by unskilled native laborers, to whom such signs as "fragile," "handle with care," and "this side up" mean absolutely nothing.

For various reasons, the hazards of present-day rail and water movement of material are far more serious than those encountered in peacetime. Rail shipments are complicated by the inefficiency of inexperienced help and the prevalence of poor carloading practices, by unfavorable switching conditions, especially in bottle-neck freight yards, by the augmented loads per car, the increased speed with which freight trains are moved, and by numerous other factors. Water shipments also present increased problems because of the current practice of conserving cargo space by using small containers for dunnage to fill the spaces around large crates stowed in the ship's hold, as well as by severe loading and unloading practices and other complications related to inadequacy of labor or lack of suitable equipment.

A consideration of first importance in the handling of material under wartime conditions is the ability of containers and their contents to meet the storage hazards that may be involved. One phase of the general storage problem relates to the stacking qualities of the containers and their ability to protect their contents against superimposed loads, such as are involved in a warehouse where boxes may be piled one on another to a height of 20 feet or more, or in the hold of a ship, where they may be required to help support the weight of crated tractors or other heavy equipment that may be loaded on top of them. An entirely different phase of the problem is concerned with the protection afforded by containers and interior packing methods to contents stored out-of-doors and exposed, often for prolnged periods of time, to the damaging effects of rain and sun, salt atmosphere, and severe changes in tempera-

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[1]Head Technologist, Forest Products Laboratory[2], Forest Service, United States Department of Agriculture.

[2]Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

ture and relative humidity. Such exposures are common in theaters of operation, where warehouses have never been built, and in other areas where storage facilities have been largely bombed out of existence.

The design of containers and the development of packaging procedures for protection against the hazards of handling, transportation, and storage is complicated by the variety of stresses involved and the impossibility of analyzing them with any reasonable precision. While applicable engineering principles have naturally been taken into account, the development of containers to meet the requirements of export shipment of war equipment and supplies has been based to a large degree upon empirical, or "trial and error" methods which, despite their recognized shortcomings, have played an important part in the continued improvement in design and construction of boxes and crates.

The effect of the stresses involved may be studied by observing the condition of containers and contents at various stages of their journey and upon arrival at destination, as well as by recourse to reports of damaged shipments, and more and more work of this type is being done. Such service observations have the obvious advantage of indicating the reaction of containers and contents to the stresses actually encountered, but they also present certain difficulties in the matter of the time involved in collecting the desired information and, in the case of reports dealing with damaged containers, the recognized general inadequacy of much of the data obtained.

An alternative procedure, and one which has been responsible for most of the progress in container design and construction, is to resort to the use of laboratory tests devised to simulate, at least to some degree, the stresses that may be encountered in actual service. In this type of work, the Forest Products Laboratory has done much pioneering. Thus there have been developed a series of standard procedures, such as the drop, puncture, compression, weaving, conbur, and drum tests, by which it is possible to subject containers to the various types of stress involved in different forms of rough handling and transportation. No one test is capable of supplying all the information required for the proper design of containers, but taken collectively the various procedures are of the utmost value in determining applicable principles and developing rules for the detailed application of these principles in the construction of boxes and crates.

Size and Weight Restrictions

In the development of shipping containers, and particularly those being designed for heavy and bulky items, it is necessary to give some thought to possible restrictions in size and weight which may be imposed because of limitations of the equipment used in handling and in transportation. It is also necessary to consider the structural limitations of the available types of containers in relation to the maximum loads which they can carry with safety under existing shipping conditions.

Size limitations are imposed chiefly by the transportation equipment that is to be used and, accordingly, will vary with the particular mode of shipment involved. Thus, where materials are to be moved by air, container sizes will necessarily be restricted not only by the available space in the cargo plane but more particularly by the size of the loading doors. Similarly, shipments destined to move by rail must conform to certain limitations. Containers loaded on flat cars, for example, must be sufficiently restricted in size to assure adequate clearance in tunnels, under bridges, and around curves, while, when box cars are to be used, the determining factor is the size of the door through which the containers must be loaded. Even in water transportation, restrictions may be necessary with regard to the length of crates, in order to permit loading in a ship's hold without undue tilting. If the loaded container is of such density that it lends itself readily to stowage between decks, its height should preferably be restricted to the between decks clearance on the average cargo ship.

Cubic displacement of containers is of importance in connection with moving packages by hand and stowing and storing them. Far more significant, however, in connection with both rail and water transportation, is its bearing on the problem of conserving critical shipping space. Marked reductions in cubic displacement are effected by simple disassembly of the items being packaged, by combining two or more items in a single container, by eliminating excessive cushioning and other protective materials within the containers, and by the improved design of containers previously adopted for many items. Added advantages are to be found in the usually resultant saving in packaging material and reduction in weight. It is essential, of course, that disassembly not be carried to the point that subsequent reassembly at destination is too complicated for the men and equipment available to do the job. But reasonable dismantling of major items, involving such steps as removing a retracting slide from a machine gun, the wheels from a vehicle, or the boom from a bomb service truck, may lead to significant savings in cube, often amounting to from 20 to 35% or more. Even small savings on individual containers become significant with items that are shipped in large quantities.

Weight restrictions are imposed on containers either because of recognized design limitations, or as the result of requirements for handling the material. The Army-Navy general specification for packaging and packing for overseas shipment limits the weight of contents packed in nailed-wood and cleated-plywood boxes to 1,000 pounds and that in wirebound boxes to 500 pounds, while corrugated and solid paperboard boxes are restricted to a maximum gross weight of 70 pounds. Loads in excess of the values indicated for the several types of wood containers are permitted only with the approval of the appropriate procurement officer. Within the indicated maximum weight limits for any type of box, it is important that the individual container be designed for the particular load it will be expected to carry. Underpacking, or overloading, of boxes and crates is one of the most prevalent causes of container failure in service. There is no justification, for example, for packing items weighing 250 or 300 pounds in a nailed wood, plywood, or wirebound box designed to carry a load of 150 pounds. Such a practice merely sets the stage for subsequent trouble. At the same time, obvious overpacking should be avoided whenever possible because of the waste incurred through the use of more wood, nails, and reinforcing straps than are actually needed.

Weight limitations are also imposed for the purpose of facilitating handling of containers in storage, during transportation, and in the field of operations.

it is one thing to move packages about at a manufacturer's plant or a depot, where adequate mechanical equipment is available to do the job; it is quite a different situation when those same packages must be handled by men in the field who have at their disposal little more physical equipment than strong backs and willing hands. Accordingly, the Army-Navy specification for export shipment of war material provides that the gross weight of any shipping container shall not exceed 200 pounds, unless the article being packed is too heavy to meet such a restriction. Further limitations have been imposed in the case of tank and automotive spare parts and certain other materials, for which the ideal gross weight of the containers is set at 70 pounds, which is considered to be the maximum load that can be carried by a fully equipped soldier.

Handling requirements may also enter into consideration in connection with the design of crates, because of limitations to the loading equipment available on shipboard. Since the handling equipment of the average cargo ship has a maximum capacity of 5 long tons, it is desirable to limit the gross weight of any crate to 11,200 pounds. Otherwise, it may be necessary to install special equipment on the ship or have heavy-lift devices available at the point of embarkation or discharge. In wartime, it is especially important that all cargo be handled by the ship's own equipment. Otherwise, the diversion of ships to destinations where heavy-lift equipment does not exist may cause prolonged delays in unloading and even be directly responsible for loss of ship and cargo by enemy action.

Nature of Contents

The character of the contents themselves will have an important bearing not only on the design and construction of containers, but on the preparation of the material and the detailed interior packing procedures, inasmuch as it will determine the need for protection against breakage, corrosion, or other damage that may necessitate time-consuming maintenance at destination, or even render the contents entirely unfit for service. In this respect there is a marked contrast between the packaging requirements of noncorrodible items, which are capable of absorbing any and all shocks incident to handling and transportation, and those of precision parts, delicate instruments, or fragile items. In the former case, the container serves primarily as a convenient device for handling and storing the items; in the latter, the protection afforded by the exterior case must be supplemented by suitable corrosion-preventive treatment, adequate bracing, proper cushioning, and other protective steps necessary to guard against possible hidden damage to the contents.

Type of Load

The effect on container design of weight, dimensions, shape, construction, and other characteristics of the item or items to be packed is often complex. As far as the various types of shipping box are concerned, however, the interrelationship of these factors has been simplified through the classification of the articles to be packed according to "type of load." Three such types are recognized. In the type 1, or easy load, the material to be packed consists of a single article or package which in itself has sufficient strength and rigidity to withstand ordinary handling and transportation hazards. In such a load, the article or package must fit snugly within the box, so that it will be in contact with and fully support each face of the shipping container. The type 2, or average load, applies to items of moderate density which are either packed directly into the exterior container or are prepacked to the extent of being wrapped or placed in interior containers. In either case, the contents must provide support for all faces of the shipping box. The type 3, or difficult load, applies to contents that are of high density or unusual concentration, require a high degree of protection, or do not support the faces of the shipping container. It is obvious that each type of load and, in fact, most individual commodities present their own problems in connection with container design. It is just such work with which the Forest Products Laboratory's container research and testing program for the armed services and other agencies is largely concerned.

Atlas Establishes New Laboratory

Establishment of a central research laboratory near Wilmington, Del. by the Atlas Powder Company was announced on December 2 by K. R. Brown, Director of Research for Atlas. The establishment of the new laboratories, Mr. Brown explained, is to allow for necessary extension of research programs vital to the war effort and to relieve the crowded conditions of present facilities. Dr. R. S. Rose, Jr., the present Director of the Atlas Research Laboratory facilities at Reynolds, Pennsylvania, will be the Director of the new Central Laboratory, the first unit of which is nearing completion.

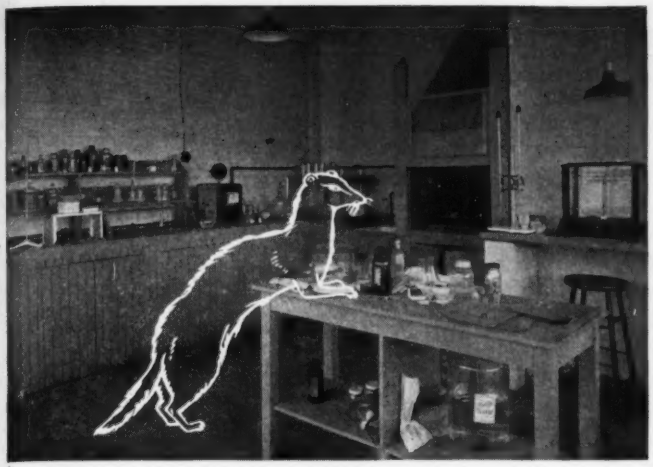
Fundamentally, the research to be conducted at the new laboratory lies in the development of organic compounds for an untold number of industrial applications. The research which has been carried on at the present laboratories at Reynolds has led toward the development of many new industrial materials including Sorbitol and Mannitol and materials made from them, which are used for emulsifiers, plasticizers, resins, insecticides, and softeners in a hundred different industries. The work of the laboratory has been greatly accelerated by the demands of our nation at war and has necessitated the larger and more complete facilities now being erected near Wilmington. The work has been directed toward relieving strategic changes. The substitutes which have been produced have often proved more acceptable than the materials replaced and the importance of a number of these products in the post-war world is accepted by all who have worked with them.

Pacific Paperboard Co. to Expand

LONGVIEW, Wash., December 4, 1943.—E. E. Flood, president of the Pacific Paperboard Company announces that the plant will expand production considerably following completion of a new financing program.

The company has obtained a 348,000 loan from the Smaller War Plants Corporation which will cover the company's indebtedness and permit the installation of new paper machines which the company purchased in the East last year. The capacity of the plant will be boosted from 65 tons to 125 tons daily.

The plant employs 200 persons and manufactures all types of boxboard, including container material, egg boxes and egg crate fillers.



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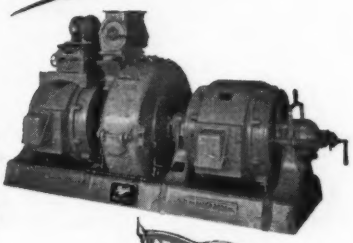

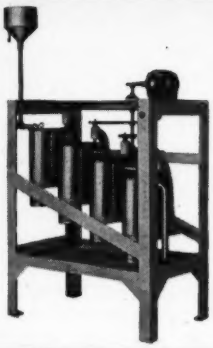

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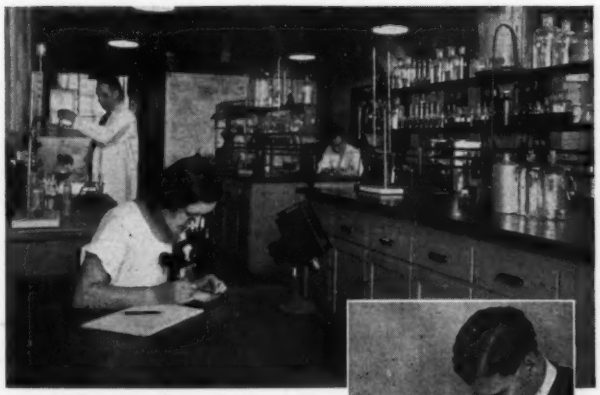

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New York Paper and Pulp Market Review

New Wood Pulp Quarterly Allocation Plan Becomes Effective January 1, 1944 — Associations Cooperate On Forms To Aid Producers and Merchants Make Reports—More Paper Stock Needed.

Office of the PAPER TRADE JOURNAL,
Wednesday, December 1943.

Wholesale orders for most types of paper continue high with the outlook for the future supply situation uncertain, according to some of the many reports received from manufacturers' representatives, jobbers, and general paper merchants this week. Despite indications that the government will more closely regulate paper production to fulfill its predetermined demands, there is no reason to believe there will occur a serious actual shortage for trade consumption, although some curtailment to meet wartime necessities must be made.

Unfortunately, there seems to be a little too much ill-considered and unnecessary comment on almost all phases of the war and home front activities and it might be a good plan to discount much of it. The future will not necessarily be that which is conceived today and the present controlled economy seems a little too shaky to long endure without a reasonable and equitable adjustment.

The index of general business activity for the week ended November 27 rose to 147.2, from 145.5 for the preceding week, compared with 145.5 for the corresponding week last year. The index of paper board production was 159.9, compared with 143.7 for the previous week, and with 140.0 for the corresponding week last year.

Paper production for the week ended November 27 was estimated at 89.8%, compared with 82.3% for 1942, with 107.7% for 1941, with 84.4% for 1940, and with 95.1% for the corresponding week for 1939.

Paper board production for the week ended November 27 was 91.0%, compared with 77.0% for 1942 with 101.0% for 1941, with 76.0% for 1940, and with 78.0% for the corresponding week for 1939.

The American Paper and Pulp Association and The National Paper Trade Association have cooperated to issue printed forms to be used by manufacturers and merchants to estimate their uses of various kinds of paper. The N.P.T.A. has prepared a condensation of the various schedules which are required to be filled out into one listing arranged by item numbers, each different item number representing a grade of paper on which seperate end-use listing is required.

Wood Pulp

The amendment to General Preference Order M-93, effective January 1, 1944, places the allocation of wood pulp on a quarterly basis. The War Manpower Commission has endorsed the program for the maximum use of farm labor in the woods. In this connection the WMC has advised selective service boards and the U. S. Employment Service to grant permission to agricultural workers up to four months off season work, in other war-useful occupations. This directive should substantially aid in the harvesting of more pulpwood this winter.

Rags

Demand for cotton cuttings is currently active with mills buying in good, steady volume. Prices are firm and unchanged.

Demand for old cotton rags is active at this date. Mills are purchasing in good volume and appear ready to absorb about all limited supplies in the roofing grades.

Old Rope and Bagging

A strong demand for old rope continues to emphasize the continual need for supplies of No. 1 Manila. Other grades of fiber are in active demand. All prices are firm.

The scrap bagging market is moderately active. Supplies are reported in several quarters as limited. No change in prices has been reported this week.

Old Waste Paper

Mill demand for paper stock is strong. The various collection drives now in progress to accumulate more paper stock are reported quite successful. There should be no reason why collections of old waste paper should not be more than doubled, since only about 35% of paper is normally reclaimed waste. Foreign shipments must, however, represent a total loss.

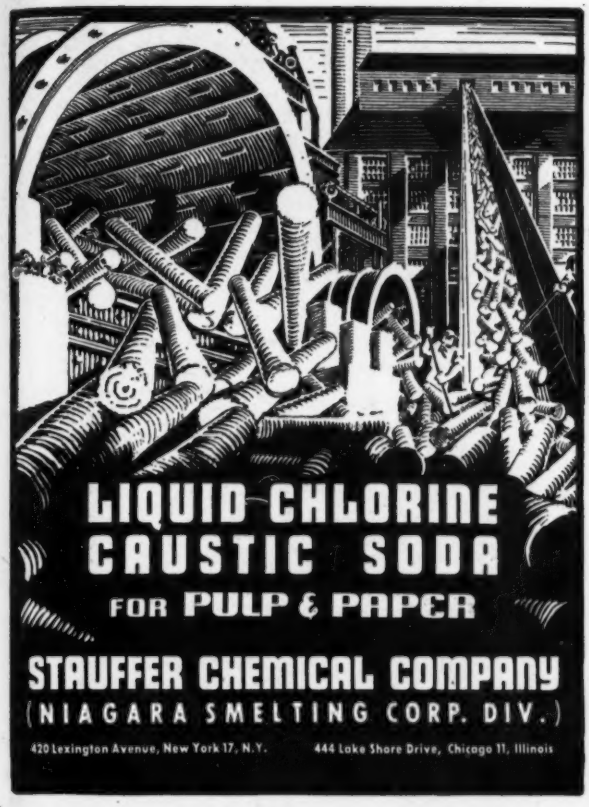
Twine

No important change in the tight wholesale supply situation in twine has been reported. No improvement is expected until the end-use of twine and cordage is broadened by WPB regulations. Prices are firm.

Miss Golub Joins Stocker

Miss K. Golub, formerly vice-president of the Atlantic Gummed Paper Corporation, has joined the Stocker Manufacturing organization at Netcong, N. J.

Fred Stocker, formerly president of the Atlantic Gummed Paper Corporation, retired from the Atlantic Gummed Paper Corporation in April intending to devote his efforts and time to his farm in New Jersey, but on July 24, through the urging of government agencies and former customers, he decided to start a gumming and waterproofing plant in Netcong. As he owned the old Singer sewing machine building, containing 65,000 square feet, made up of an "L" reinforced concrete building, with a railroad siding, he decided to make this his headquarters. In October production commenced in the gumming division and within a very short time the waterproof machines, which are on the floors, will be erected and the production line will be moving some time during December.



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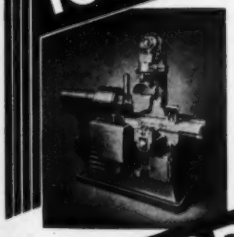

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MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, December 8, 1943.

BLANC FIXE—Quotations on blanc fixe continue to be reported unchanged. Prices are firm. The current quotation is $40 per ton for the pulp, in barrels, at works. The powder is quoted at $60 per ton, f.o.b., works.

BLEACHING POWDER—The market for bleaching powder is currently reported active. Prices continue unchanged. Current quotations range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24½ cents per pound; less than 2,000, 24¾ cents per pound, f.o.b., shipping point. Imported, 11 cents per pound, f.o.b., source.

CAUSTIC SODA—The supply situation in caustic soda is still reported tight. Demand for dry caustic is very heavy. Quotations are firm and unchanged. The current quotation on solid caustic soda is $2.30 per 100 pounds; flake and ground are quoted at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay continue unchanged. Domestic filled clay is quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported china clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—A short supply situation is still reported this week. Quotations are unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—Quotations on some grades of rosin are lower this week. "G" gum rosin is currently quoted at $4.02 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $3.99 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $4.21 per 100 pounds, f.o.b., works.

SALT CAKE—The market situation of salt cake continues unchanged. Demand continues moderate. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—The market for soda ash is tight. Demand is reported very heavy. Quotations are firm and conform to prevailing prices. Prices on soda ash in car lots, per 100 pounds, are as follows; in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Little improvement in the tight supply situation of corn and its products is reported at this date. Prices are unchanged. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds; all prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—All applications for WPB allocations on sulphate of alumina are reported granted for the current period. The commercial grades are quoted at from $1.15 to $1.25 per 100 pounds; iron free is quoted at $2.35 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Demand for sulphur continues active. Quotations continue unchanged. Annual contracts are currently quoted at $16 per long ton, f.o.b. mines. The current contract quotation at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc are unchanged and continue to conform to prevailing market levels. Domestic talc is currently quoted at from $16 to $21 per ton, at mines.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	*$58.00	@	—
Sheets	64.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Car'oad Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.60	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00
Boards, per ton—			
News	*48.00	@	—
Chip	*48.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext.		
No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.. "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@$15.50
No. 2 Glossy Coated	12.40	" 14.00
No. 3 Glossy Coated	11.60	" 13.25
No. 4 Glossy Coated	11.15	" 12.75
No. 1 Antique (watermarked)	10.25	" 11.75
No. 2 Offset	9.60	" 11.00
A Grade E. F.	9.35	" 10.75
A Grade S. & S. C.	9.60	" 11.00
B Grade E. F.	8.85	" 10.25
B Grade S. & S. C.	9.10	" 10.50
C Grade E. F.	8.55	" 9.75
C Grade S. & S. C.	8.80	" 10.00
D Grade E. F.	8.25	" 9.50
D Grade S. & S. C.	8.50	" 9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight, Not Exceeding OPA Allowances.

Bl. Softwood Sulphite		$76.00
Unbl. Softwood Sulphite	65.00@	66.00
Bl. Hardwood Sulphite		73.50
Unbl. Hardwood Sulphite		63.50
Bl. Mitscherlich		81.00
Unbl. Mitscherlich	72.00 @	82.00
N. Bleached Sulphate		86.00
S. Bleached Sulphate		79.00
N. Semi-Bleached Sulphate		82.00
S. Semi-Bleached Sulphate		75.00
N. Unbl. Sulphate		73.00
S. Unbl. Sulphate		63.50
Bl. Soda		66.00
Unbl. Soda		62.00
Groundwood		46.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

More than just a TRADE MARK

EXCELSIOR Woolen Co. KNOX Camden, Me. FELTS & JACKETS

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ENGLISH FINISH SUPERCALENDERED
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• • • •

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KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:

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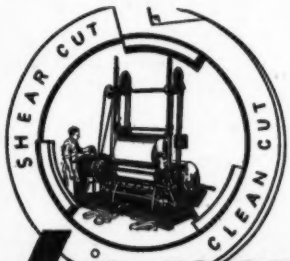
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina



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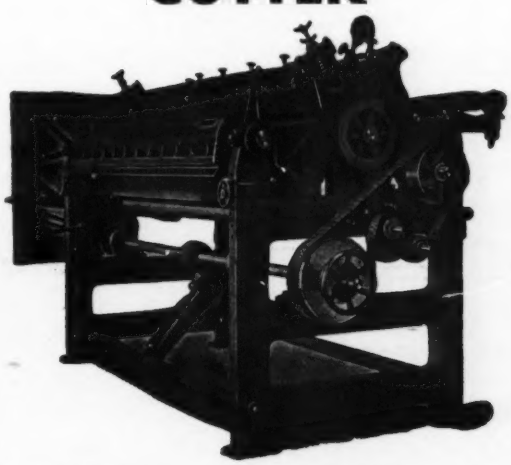

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LAWRENCE, MASS.

MAKERS OF
SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS
CUTTER KNIVES, PATENT TOP SLITTERS.

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	@	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

*OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	17¼	"	—
Paper Makers	.17	"	—
Tube Rope	19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila		"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07¼	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¾	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¼	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed	1.00	"	1.50
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Hard White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.15	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.50	@	2.75
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.25	"	3.50
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	3.75	"	4.00
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Bagging	1.35	"	—

*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¼	"	.05
New White No 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06½
Underwear Cutters, Bleached	.06¾	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¾	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—

*OPA Maximum Prices

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—